



STRESS AS A SOCIOCULTURAL PHENOMENON

EXPLORING THE DISTRIBUTED NATURE OF STRESS IN AN ORGANIZATIONAL CONTEXT

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TANJA KIRKEGAARD

DISSERTATION SUBMITTED 2014



AALBORG UNIVERSITY
DENMARK

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Central Denmark Region

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Department of Occupational Medicine
Regional Hospital West Jutland
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AUTHOR CV

Tanja Kirkegaard, cand.psych. In 2006 I received my masters degree in psychology from the Department of Psychology and Behavioural Sciences, Aarhus University. I have worked as a research assistant and as an external lecturer at Aarhus University before I in 2008 was employed at the Department of Occupational Medicine, Regional Hospital West Jutland - University Research Clinic, where I conducted therapy with people on sick leave due to stress. In 2009 I initiated my Ph.D. project. My main research focus is the contextual embeddedness of human acting, feeling, and thinking and I am particularly interested in the role that culture plays in the stress process.

RESUME IN ENGLISH

Intuitively, people tend to think in individualistic terms about the stress that allegedly permeates modern life, not least work life, where we often hear about a 'stress epidemic'. From this common point of view, stress is understood as both a mental phenomenon and as an embodied phenomenon. But a perspective on stress as something embedded in and distributed across the physical and social environment has not been prevalent neither in the research on stress nor in lay discussions.

In this study I apply a social and cultural approach to work related stress. I am interested in how the cultural practices and thereby socio-material practices at work are related to stress understandings, to specific appraisals of the work conditions and how the socio-material practices are related to specific coping practices. It is argued throughout the thesis that to fully understand the complex phenomenon of stress, we need to take its social and physical embeddedness into account.

The project explores the distributed nature of stress at two departments of a large Danish company using a mixed methods design with a combination of a questionnaire and fieldwork.

In chapter 1 a general introduction into the project is provided.

In chapter 2 I critically explore the concept of stress and trace its historical origins in order to understand why the cognitive understanding of stress has been so widespread. I briefly address the subjugated knowledge types in relation to stress and report a short literature review of the research which operates with collective oriented concepts of appraisal and coping and which explores the cultural and social nature of stress. I argue that this way of understanding stress needs to be supplemented with a focus on the physical surroundings in the understanding of stress.

In chapter 3 the theoretical framework will be unfolded arguing for the centrality of the cultural context and hence the semiotic and material tools people use when they interpret and act in relation to their work conditions. This chapter serves as an introductory description of my theoretical framework before the actual application of this framework in chapter 7.

Chapter 4 addresses the mixed methods approach and comprise how the two methods are combined, the personal and professional processes of the integration and a description of how the methods complement each other in this project.

In chapter 5 I describe the data collection of each method and the qualitative data collection is more thoroughly described in chapter 6.

Chapter 6 comprises an ethnographical description of the two cases and serves to illuminate the process behind the results of this study.

In chapter 7 I argue that the stress process seems deeply embedded in the social and material world and that existing theories about stress can not grasp the social and physical embeddedness of the stress process as they operate with an alleged gap between the individual and the environment. Therefore it is argued that it was meaningful to develop a theoretical perspective which in its philosophical and epistemological foundation has an understanding of the individual and her mental processes as embedded in a physical and social environment at the outset. The main contribution from this chapter is the tentatively invoked concept of distributed appraisal and coping as a way of emphasizing the situated, dialogical, distributed and ‘extended’ nature of stress. And that a cultural psychological understanding of stress can bring us new knowledge about the appraisal and coping process as this understanding is related to the ecology – the landscape of material artefacts and social relations which invite employees to appraise the situations in a certain way and afford using certain coping strategies rather than others.

In chapter 8 the empirical findings from the qualitative part of the study on the distributed nature of stress are reported through an introduction of a landscape metaphor in order to map the landscape of material artefacts and social relations and analyze the environmental constraints and enablement of appraisal and coping. The aim was to look at the broader social and material system that helped define work environmental problematic conditions, define how to appraise them and determine what tools and resources were available for the participants’ ways of coping. Two main points can be taken from these findings. 1) The different professional groups differed in their appraisal and coping practice due to a different environmental access to ways of interpreting their working conditions and ways of coping with them and hence they moved within different appraisal and coping landscapes. The group differences in coping practice are characterized by that one of the groups primarily used an individualistic adjustment-oriented coping practice while the other group primarily used a collective alteration-oriented coping practice. 2) Aspects of the material and social environment separately or intertwined enabled or constrained different interpretations and actions and the social use of these cultural resources distributed distinct appraisal and coping practices.

In chapter 9 I combine the quantitative and qualitative results and describe the empirical findings from both approaches. The quantitative part of the study indicates significant differences in coping between the formal and informal groups as well as an increasing polarization in coping practice between the two formal groups. The qualitative part of the study reveals that the polarization seems to be due to a specific management practice that creates barriers to the employees’ attempt to alter their working conditions in order to reduce their workload. Due to cultural goals within the two social practices, the employees in the two groups negotiate the managerial

barriers differently which strengthened the two groups' coping practice in the direction of an individualized adjustment-oriented and a collective alteration-oriented coping practice. The influence of the management practices on the informal groups is also apparent as one of these subgroups develops in coping practice over time due to experiences with the management. These results point to the social embeddedness of coping as well as the influence of a non-supportive management practice on social practices and how this management practice can reinforce a less flexible coping pattern over time.

In chapter 10 I present the main results and discuss the theoretical and methodological issues and limitations of the study.

In conclusion the thesis finds that stress is deeply embedded in the material and social environment which in different ways enable or scaffold specific ways of interpreting events in the work environment and distinct ways of acting within it. This embeddedness and distributed nature of stress is reflected in: 1) a variety of material and social resources and barriers inherent in the working environment, which shapes certain ways of appraising specific working conditions and distinct ways of coping with them. 2) Social practices (informal and formal groups) within the working environment have different access to how to appraise the working conditions and how to cope with them and differ in their negotiation of distinct appraisal and coping practices. 3) The different coping practices are characterized by an individualistic adjustment-oriented coping practice vs. a collective alteration-oriented coping practice. 4) A non-supportive management practice seems to strengthen these social and cultural practices and reinforce a less flexible coping pattern over time.

DANSK RESUMÉ

Intuitivt har mange mennesker en individualistisk forståelse af fænomenet stress, som gennemsyrrer det moderne liv, ikke mindst vores arbejdsliv, hvor vi ofte hører om en 'stress epidemi'. Stress forstås således både som et mentalt problem og et kropsligt problem. Men et perspektiv på stress som indlejret i og distribueret henover de fysiske og sociale omgivelser har ikke været fremherskende, hverken i stress forskningen eller i lægmandsdiskussioner.

I dette studie anlægger jeg et socialt og kulturelt perspektiv på arbejdsrelateret stress. Jeg er interesseret i, hvordan kulturelle praksisser og dermed socio-materielle praksisser på arbejdet er relateret til stress forståelser, til specifikke vurderinger af arbejdsbetingelserne (appraisal) og relateret til specifikke håndterings praksisser (coping). Igennem afhandlingen bliver det argumenteret at for at forstå kompleksiteten i udviklingen af stress til fulde bliver vi nødt til at tage den sociale og fysiske indlejrethed i betragtning.

Projektet udforsker stress som et distribueret fænomen på to afdelinger i en større dansk virksomhed og har sit udgangspunkt i et mixed methods design med en kombination af spørgeskema og feltarbejde.

I kapitel 1 gives en general introduktion til projektet.

I kapitel 2 præsenteres en kritisk gennemgang af begrebet stress, og dets historiske oprindelse adresseres med henblik på at forstå, hvorfor den individualistiske forståelse af stress er blevet så udbredt. Jeg beskriver kort de frasorterede videnstyper i relation til stress og rapporterer et kort litteratur review over forskningen, der opererer med kollektivt orienterede begreber omkring appraisal og coping og som udforsker de kulturelle og sociale aspekter ved stress. Her argumenterer jeg, at disse perspektiver på appraisal og coping bliver nødt til at blive suppleret med et fokus på de fysiske omgivelser i forståelsen af stress.

I kapitel 3 bliver den teoretiske ramme udfoldet. Her fremhæves centraliteten af den kulturelle kontekst og dermed de semiotiske og materielle redskaber som mennesker bruger når de fortolker deres arbejdsbetingelser og handler i forhold til dem. Dette kapitel fungerer som en introducerende beskrivelse af min teoretiske ramme før den faktiske anvendelse af det teoretiske perspektiv i forhold til stress i kapitel 7.

Kapitel 4 adresserer studiets mixed methods tilgang og indeholder en beskrivelse af, hvordan de to metoder bliver kombineret, de personlige og faglige processer i integrationen samt en beskrivelse af, hvordan metoderne komplementerer hinanden i dette projekt.

I kapitel 5 beskriver jeg kvantitative og kvalitative data indsamling.

Kapitel 6 indeholder en etnografisk beskrivelse af de to cases og har det formål at belyse processerne bag genereringen af projektets resultater.

I kapitel 7 argumenterer jeg, at stressprocessen synes dybt indlejret i den sociale og materielle verden, og at eksisterende teorier om stress ikke kan indfange den sociale og fysiske indlejret af stress processen, da de opererer med en kunstig adskillelse mellem individet og omgivelserne. Der bliver derfor peget på det meningsfulde i at udvikle et teoretisk perspektiv som i dets filosofiske og epistemologiske fundament har en forståelse af individet og hans eller hendes mentale processer som indlejret i en fysisk og social kontekst. Det væsentligste bidrag fra dette kapitel er de tentative begreber, distribueret appraisal og coping som fremhæver det situerede, dialogiske, distribuerede og 'udstrakte' aspekt ved stress. Ydermere fremhæves det, at den kulturelle psykologiske forståelse af stress kan bidrage med ny viden omkring appraisal and coping processen, da denne forståelse er relateret til et økologisk perspektiv – landskabet af materielle artefakter og sociale relationer, som inviterer medarbejderne til at appraise situationen på en bestemt måde og inviterer til at bruge bestemte coping strategier frem for andre.

I kapitel 8 rapporteres de empiriske resultater fra den kvalitative del af studiet omkring stress som et distribueret fænomen gennem en introduktion til en landskabsmetafor, som benyttes til at kortlægge landskabet af materielle artefakter og sociale relationer og analysere de kontekstuelle begrænsninger og muligheder, der er for appraisal og coping. Formålet er at se på det bredere sociale og materielle system, som bidrager til at definere de arbejdsmiljømæssige problematiske betingelser, bidrager til at definere, hvordan man skal vurdere dem og som konstituerer de ressourcer, der er tilgængelige for deltagernes måde at cope på. To hovedpointer kan udledes af disse resultater: 1) de forskellige faggrupper adskiller sig i deres appraisal og coping praksis pga. forskellig kontekstuel adgang til måder at fortolke arbejdsbetingelser og måder at cope med dem og således bevæger de sig i forskellige appraisal og coping landskaber. Forskellene består i, at den ene gruppe er karakteriseret ved at bruge en individualistisk tilpasningsorienteret coping praksis og den anden gruppe bruger en kollektiv forandringsorienteret coping praksis. 2) Forskellige aspekter af den materielle og sociale kontekst, enten separate eller forbundne, begrænser eller muliggør forskellige fortolkninger og handlinger og den sociale brug af disse kulturelle ressourcer distribuerer bestemte appraisal og coping praksisser.

I kapitel 9 kombineres de kvantitative og kvalitative resultater, og de empiriske resultater rapporteres fra begge metodologiske tilgange. Den kvantitative del af studiet indikerer signifikante forskelle i coping mellem faggrupperne samt mellem de sociale subgrupper i en af de deltagende afdelinger. Den kvalitative del af studiet belyser, hvordan gruppeforskellene i coping opstår pga. at forskellige kulturelle mål er repræsenteret i grupperne. Derudover at manglende ledelsesmæssig støtte i forhold

til gruppernes bekymring over arbejdsbetingelserne synes at polarisere gruppernes coping praksis over tid, da den manglende støtte synes at styrke deres kulturelle karakteristika.

I kapitel 10 præsenterer jeg hovedresultaterne og diskuterer de teoretiske og metodologiske temaer og begrænsninger i studiet.

Konkluderende finder dette studie, at stress er indlejret i den materielle og sociale kontekst som på forskellig måde inviterer til specifikke måder at fortolke begivenheder i arbejdsmiljøet og inviterer til specifikke måder at handle på. Indlejretheden i den materielle og sociale kontekst og det distribuerede perspektiv afspejles i: 1) de forskellige materielle og sociale ressourcer og barrierer i arbejdsmiljøet former bestemte måder at vurdere arbejdsbetingelser på og bestemte måder at håndtere dem på. 2) Sociale praksisser (uformelle og formelle grupper) i arbejdsmiljøet har forskellig adgang til, hvordan de skal appraise og cope med deres arbejdsmiljø, og de adskiller sig i deres appraisal og coping praksisser. 3) De forskellige coping praksisser er kendetegnet ved en individualistisk tilpasningsorienteret coping praksis vs. en kollektiv forandringsorienteret coping praksis. 4) En ikke-støttende ledelsesmæssig praksis synes at styrke de sociale og kulturelle praksisser og reforcere et mindre fleksibelt coping mønster over tid.

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Aarhus, September, 2014
Tanja Kirkegaard

TABLE OF FIGURES

Table 1 Research design

Table 2 Research design

Table 3 Demographic data on the two participating departments

Table 4 Response rate for the two participating departments

Table 5 Datacollection overview

Table 6 Group interview composition

Table 7 Group differences in perceived stress between researchers and lab technicians at T2 and T3

Table 8 Group differences in coping between researchers and lab technicians at T2

Table 9 Group differences in coping between researchers and lab technicians at T3

Table 10 Group differences in coping between Lab tech 1 and Lab tech 2 at T2

Table 11 Group differences in coping between Lab tech 1 and Lab tech 2 at T3

Figure 1 Method triangulation design for the present study

Figure 2 Matrix of the resources and barriers for appraisal and coping

Figure 3 Matrix of work related coping practices

Figure 4 Non-work related communication (most important) at T2

Figure 5 Behavioural disengagement at T2

Figure 6 Behavioural disengagement at T3

TABLE OF CONTENTS

Chapter 1:	
General introduction	21
1.1. Background	21
1.2. Theoretical considerations	24
1.3. Methodological considerations	25
1.4. Aim and scope	26
1.5. Research questions	26
1.6. Agenda and content	27
Chapter 2:	
A critical examination of the concept of stress	31
2.1. Stress definitions and their theoretical counterparts	31
2.2. Historical transformations in the concept of stress: A history of stress discourses.	34
2.2.1. Stress as a neurological condition	36
2.2.2. Stress as a physiological condition	37
2.2.3. Stress as a cognitive condition	37
2.2.4. Transformations in organization form and the acceptance of the cognitive stress discourse.	40
2.2.5. The reformulation of the cognitive stress discourse within a work environmental setting	41
2.2.6. The collective nature of stress	44

Chapter 3:

Theoretical considerations **49**

3.1. A hermeneutic and pragmatic line of thought	49
3.2. Cultural psychological antecedents	50
3.3. Cultural psychology	51
3.3.1. Internalization and externalization	52
3.3.2. Material and semiotic signs	53
3.3.3. Dialogical interaction	54
3.3.4. Enabling and constraining devices	55
3.4. Distributed cognition	56
3.5. The integration of the two theories	58
3.6. A cultural psychological understanding of stress	59

Chapter 4:

Methodological considerations **61**

4.1. Study design	62
4.2. Participants	62
4.3. The quantitative method	63
4.3.1. Research procedure	63
4.3.2. Analysis of quantitative data	65
4.3. The qualitative method	66

Chapter 5:
Mixed methods **69**

5.1. A mixed methods approach in this study	69
5.2. Epistemological battles	70
5.3. The cultural manifestation of the derivative contrast	71
5.3.1. Two cultural contexts and the polarization of methodologies	72
5.3.2. The integration of the methods	73
5.4. The integration of methodological approaches	74

Chapter 6:
Ethnographic descriptions of two cases **79**

6.1. Toward an agreement of participation	79
6.2. The participating departments	80
6.3. The first meeting – presenting the results of the questionnaire	81
6.4. The first day at the two departments	83
6.4.1. The managements' different approach to the employees	85
6.5. The research unit	86
6.5.1. Absence and presence as culture-specific characteristics	86
6.5.2. Access to the field	87
6.5.3. Diagnostic events	89
6.5.4. Different perceptions of time	91

6.5.5. The interviews	93
6.5.6. The transmission of attention fields – becoming a consultant	96
6.5.7. Closure	97
6.6. The production unit	98
6.6.1. The physical embeddedness of the stress process	100
6.6.2. The historical shaping of the social and collective forms of coping	101
6.6.3. Mediated habituation	103
6.6.4. Closure	104
6.7. Analysis	104

Chapter 7: Paper I

Rewriting stress: Toward a cultural psychology of collective stress at work	109
---	-----

Chapter 8: Paper II

Which coping strategies does the work environment offer you? A field study of the distributed nature of stress	125
--	-----

Chapter 9: Paper III

With a little coping from my friends: A mixed methods study of the distributed nature of coping in organisations	147
--	-----

Chapter 10:	
General discussion: Conclusion, reflection and implication	179
10.1. Overall conclusions	179
10.1.1. Research questions	181
10.2. Pragmatic considerations	183
10.2.1. Do we just make stress up?	183
10.2.2. What does this study add?	185
10.2.3. A perspective of culture: the sociomaterial world	186
10.3. What does this study add to stress research?	187
10.4. What does the study not address?	190
10.4.1. The personal culture – the individual level of analysis	190
10.4.2. The emotional level of analysis	191
10.5. Methodological issues	191
10.5.1 Did I find only my theoretical presuppositions?	192
10.5.2. Analysis	193
10.5.3. Generalization of the results	193
10.5.4. The quantitative part of the study	194
10.6. Avenues for the future	194
 References	 197

CHAPTER 1: GENERAL INTRODUCTION

*Participant: There is also something in our narrative that we have to be busy.
Everybody in the corridor is stressed.*

*Interviewer: There's not someone who doesn't think like that? Who says, "No,
everything's fine"?*

Participant: I don't think they dare say that anymore.

This quote, taken from an interview in this study, is one example of how cultural and social practices enter into our way of thinking and acting in relation to stress; it is an example of what this thesis is intended to illuminate. The purpose of this thesis is to explore occupational stress as a distributed and situated phenomenon within an organizational context – here, two departments of a multinational company in Denmark. The project is reported in three journal articles. One paper targets theory and builds on the results from both departments. The other two papers each report the empirical findings from one of the departments.

This general introduction gives the reader an overall account of the project as well as the pathways used to conduct this specific project, its theoretical and methodological approaches.

1.1. BACKGROUND

In the third European survey of working conditions, work-related stress was the second most frequently reported health problem (Paoli & Merllié, 2001), and it is widely debated among laypeople as well as in the scientific environment. In the media it is a subject that can lead to dramatic headlines, such as the following headline on August 23 in a Danish newspaper, 'Ekstrabladet':

"Explosion in stress: More than 500,000 are struck down. Every fifth Dane feels stressed and the number is increasing explosively. The illness leaves society with a billion-dollar bill and the affected with a mental letdown that, in the worst case, can cost lives".

This headline articulates that stress is widespread, increasing, and costly and has devastating consequences for people and at the same time exemplifies how stress often rather dramatic is featured in the media. Stress has become a natural part of

our everyday language. While writing this thesis, I became aware of how often we use the word “stress.” When I asked family and friends how they were doing, a large proportion of them answered, “Fine, although I am a bit stressed out at the moment.” Although this unscientific exploration cannot be generalized, it reflects how stress can be used as a normal way of explaining our everyday lives, which at times are busy. But stress also refers to having a broad range of symptoms and, as mentioned above, has become a frequently reported health problem. A vast amount of stress-reducing techniques and treatments from different areas are on offer. A Google search for “stress treatment” on September 2, 2014, returned 1.650.000 hits covering a wide range of different treatments, from more formalized treatments, such as cognitive behavioral therapy and mindfulness, to more alternative treatments, such as presence therapy, thought field therapy, garden therapy, hypnosis, neuro-coaching, and craniosacral therapy. The number of people experiencing stress, the awareness of it in the media, its prevalence in our everyday conversations, and the myriad treatments available signal that stress has become what Wainwright and Calnan (2002) have termed “*a modern epidemic.*”

In this study I apply a social and cultural approach to examine work-related stress. I am interested in how the social and cultural practices of work actions are related to the understanding of work-related stress and to appraisals of working conditions and how they are related to specific coping practices.

My interest in this area developed from my work as a psychologist in the Department of Occupational Medicine at the Regional Hospital West Jutland - University Research Clinic, Denmark, where I conducted therapy with people on sick leave due to stress. At one point I had four social workers from the same work team in therapy, one newly employed and three experienced, and I invited them to group sessions combined with individual sessions. During these conversations I noticed three interesting dynamics: (1) their shared ways of talking about, appraising (evaluating a potential stressor), and coping with (cognitive and behavioral efforts to manage the stressor) work-related problems within the group, (2) experienced employees’ difficulty in incorporating the new steps the company had taken in order to improve the working conditions, and (3) the new employee’s re-emerging stress symptoms when she interacted with the group because she had difficulty holding on to the issues we had talked about in therapy.

I became interested in understanding these social dynamics in relation to their organizational context. In order to better understand these dynamics, I searched for literature on the subject – the social nature of occupational stress in an organizational context – for concepts that had been developed to describe this phenomenon.

I found different lines of research belonging to this area. One focused primarily on the discursive understanding of stress, another on the social aspects of coping, and a third on the contagiousness of burnout.

Looking further into the literature on the discursive understanding of stress, I found studies that have explored the ways in which societal and cultural discourses enter into understandings of stress and stress experiences at work (Doublet, 2000; Furnham, 1997; Harkness et al., 2005; Kinman & Jones, 2005; Lewig & Dollard, 2001). What is common to these studies is that they applied a discursive perspective on stress but did not relate it to the social negotiations and concrete work environmental characteristics specific to the organizational context of the discourses.

Folkman & Moscovitz (2004) have through a review over the coping research argued that most of the literature focusing on the social aspects of coping has been addressing the consequences of coping on social relationships in the sense that individuals' coping behavior might be beneficial or detrimental to others (see e.g. Berghuis & Stanton, 2002; DeLongis & O'Brien, 1990). Another research area within the social aspects of coping is the role of social support as a coping strategy but the main interest within this area is the influence of social support on stress (Bowling, Beehr, & Swader, 2005; Browner, 1987; Etzion, 1984). Within this line of research, I was not able to find research that focused on the social aspects that shape coping within an organizational context and thereby focused on how organizational members interpret, define, and negotiate specific ways of coping with working conditions.

Within traditional work environmental research, a small group of researchers has focused on how burnout is transferred between employees using the concept of burnout contagion (Bakker & Schaufeli, 2000; Bakker, Schaufeli, Sixma & Bosveld, 2001; Bakker, Demerouti & Schaufeli, 2003; Bakker, LeBlanc & Schaufeli, 2005). Researchers within this research tradition operate with a direct causality between individual well-being and the influence from others building on research within emotional contagion (Barsade, 2002; Hatfield, 1993). Burnout contagion has been examined within these studies in different areas of work, such as among teachers (Bakker & Schaufeli, 2000), general practitioners (Bakker et al., 2001), and intensive care nurses (Bakker et al., 2005). The results show that the communication of negative attitudes and burnout complaints between colleagues predict the spread of burnout among them (Bakker & Schaufeli, 2000; Bakker et al., 2005). Focusing on the process of burnout contagion, these studies also found that the more frequent the employees communicated with a burned-out colleague the more likely the employees were of catching the colleague's negative attitudes (Bakker et al., 2000). This line of research focuses primarily on communicative features as the causal connection to the development of burnout and does not address specific contextual conditions.

Common to all these research areas is that they do not include the employees' specific organizational context in their analyses and understandings and it occurred to me that very few studies have actually explored the collective dimension of stress experience within work organizations. One important exception is Lämsäsalmi, Peiro & Kivimäki (2000), who explored the impact of organizational culture on work-related stress experiences. Following three independent divisions within a multinational company,

they found that similar stressors across different divisions within an organization were shaped differently, and the respective coping strategies also differed from one subcultural context to another. The differences emerged due to different cultural narratives within the departmental subcultures, which produced specific ways of coping with the stressors. This study had its point of departure in the concepts of collective appraisal and coping as two processes inherent in a collective stress process. Collective appraisal is defined as

“when members of a particular organizational culture as a group develop shared perceptions of a given situation and they interpret it as being threatening or as beneficial”

(Peiro, 2008, p. 299).

Collective coping is defined as

“the learned, uniform responses that members within the culture manifest when trying either to remove the stressor, to change the interpretation of the situation, or to alleviate the shared negative feelings it produces”

(Länsisalmi et al., 2000, p. 528).

Both definitions reflect a focus on the appraisal and coping process as shared and learned and thereby as a social and cultural process.

It was with a point of departure in these concepts that I wrote my PhD application and initiated my research project. During my fieldwork, I became increasingly interested in expanding these concepts to encompass material surroundings, which are further described in chapter 3.

1.2. THEORETICAL CONSIDERATIONS

My theoretical mind-set and propositions in the initial research process were inspired by dialectical-materialistic assumptions about the world with a foundation in critical psychology (Dreier et al., 1997; Holzkamp, 1996, 1998) and theory of situated learning (Lave & Wenger, 1991).

With these perspectives in mind, the contextual dialectical relationship inherent in the shaping of individuals' perception and action was a natural part of my understanding of human conduct. But as my study progressed, I became more and more focused on social and cultural processes and less on other elements within the context. I became progressively inspired by the cultural-psychological perspective (Valsiner, 1998, 2007), with its focus on specific and concrete processes in the creation of meaning within different cultures, and especially in semiotic processes. While collecting data, I was reminded of the specific material context that social and cultural processes

were part of and that constituted the generated meaning structures. This is also in line with the cultural-psychological framework, which focuses not just on language and sociality but also on material tools as mediating the generation of meaning. This part of the theory is thus relevant in understanding how appraisal and coping practice can be understood not only in regard to the individual but also as mediated by and distributed across social relations and material artifacts. Culture within this theoretical frame consists of material and a web of semiotic signs and tools that constantly change due to individuals continuously transforming these systems. From this perspective the person is seen as an agent continuously engaged in an active process of relating personal meaning to the locations, experiences, and social interactions within which he or she is embedded. An exploration of stress within this theoretical framework thus focuses on an exploration of how individuals make sense, ascribe meaning and act according to the ecological surroundings.

1.3. METHODOLOGICAL CONSIDERATIONS

In order to explore the social and cultural nature of stress within an organizational context, I was primarily interested in conducting a qualitative study of the phenomenon because I wanted to understand the specific social dynamics within different groups or subcultures within a department as well as gain a deeper understanding of the employees’ cultural and organizational context. Furthermore, I was interested in whether it was possible to quantitatively detect group differences in stress and coping and explore the development of coping over time.

I chose a mixed methods design, with the qualitative method most prominent, consisting of fieldwork, individual and group interviews, a questionnaire distributed three times combined with a social network analysis. The design is pictured below.

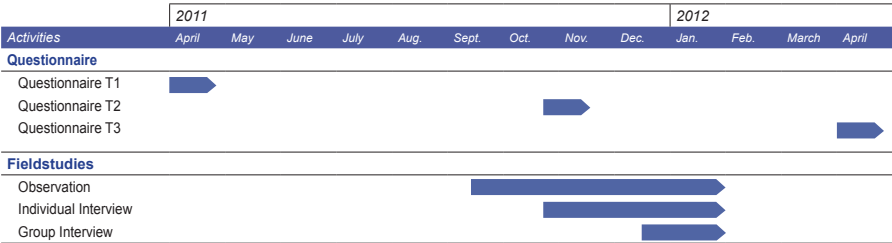


Table 1 The research design

The qualitative approach was used to explore the appraisal and coping practice related to social processes and experiences related to their cultural and organizational practice. The quantitative dimension was used to capture the social dimension of appraisal and

coping by mapping informal and formal group differences in coping and how they developed over time. The qualitative analyses contributed narrative explanations of how and why these coping practices developed.

1.4. AIM AND SCOPE

Traditional stress research assumes that the context in which the appraisal and coping processes take place are merely ancillary to, and thus fundamentally distinct and even neutral to, how individuals appraise and cope with working conditions. I explore in this thesis what knowledge about stress emerges when we consider the organizational context in which individuals' perceptions and actions are developed as not separable from or ancillary to those perceptions and actions. What would the research add if we viewed the context as an integral part of how individuals think and act?

1.5. RESEARCH QUESTIONS

Based on the above descriptions, I have both “*how*” and “*why*” in my study target. My overall research question is therefore formulated as follows:

How are appraisal and coping processes related to cultural processes within an organizational context, why do distinct appraisal and coping practices emerge, and how do they develop over time?

The premise is an exploration of what knowledge we can gain by applying a distributed perspective on stress and thereby exploring the psychological processes in stress as not just happening in the head of the individual but including social relations and artifacts. What kind of knowledge can we gain by putting the cultural processes in the fore when understanding human meaning making and actions?

Hence, in this thesis I explore how these cultural processes enter into our perceptions, interpretations, and actions within a specific organizational context through the following questions:

- How are appraisal and coping processes related to cultural processes within an organizational context? By means of qualitative methods, I seek to answer this question by focusing on the ecological environment and individuals' use of semiotic and material tools in their interpretations and actions.

- Why do distinct appraisal and coping practices emerge within a particular organizational context? Qualitative data is used to explore the ecological environment in order to understand the contextual resources and barriers for appraisal and coping inherent in the surroundings.
- How do the appraisal and coping practices develop over time within a particular organizational context? Quantitative data is used to measure whether there are formal and informal differences in coping, how they are characterized and how they develop over time. Qualitative data provides descriptions of the group differences in appraisal and coping as well as their development over time related to the specific organizational context they are part of.

1.6. AGENDA AND CONTENT

In chapter 2 I critically explore the concept of stress and trace its historical origins in order to understand why the cognitive understanding of stress has been so widespread. I briefly address the subjugated knowledge types in relation to stress and report a short literature review of the research that operates with collective-oriented concepts of appraisal and coping and that explores the cultural and social nature of stress. I argue that this way of understanding stress needs to be supplemented with a focus on the physical surroundings.

In chapter 3 the theoretical framework is unfolded, arguing for the centrality of the cultural context and hence the semiotic and material tools people use when interpreting and acting in relation to their work conditions. This chapter serves as an introduction to my theoretical framework before the actual application of the theory in chapter 7.

Chapter 4 addresses the mixed methods approach, how the two methods complement each other in this project, how they are combined, and the personal and professional processes of their integration.

In chapter 5 I describe the data collection of each method, but the qualitative data collection is more thoroughly described in chapter 6.

Chapter 6 comprises an ethnographical description of the two cases and serves to illuminate the process behind the results of this study.
After this follows the three papers:

Chapter 7 comprises the paper “*Rewriting stress: Toward a cultural psychology of collective stress at work.*” In this paper I apply the theoretical framework described in chapter 3 to the phenomenon of stress and explore what kind of knowledge we can gain by applying this perspective. I argue that it is meaningful to develop a theoretical

perspective that at the outset, in its philosophical and epistemological foundation, has an understanding of individuals and their mental processes as embedded in a physical and social environment. I tentatively invoke the concept of distributed appraisal and coping as a way of emphasizing the situated, dialogical, distributed, and extended nature of stress and argue for focusing on the ecology – the landscape of material artifacts and social relations that invite employees to appraise situations in a certain way and afford using certain coping strategies rather than others.

In chapter 8 the empirical findings from the qualitative part of the study on the distributed nature of stress are reported through the introduction of a metaphor to map the landscape of material artifacts and social relations and analyze the environmental constraints and enabling of appraisal and coping. The aim is to look at the broader social and material system that helps define work environmental problematic conditions, define how to appraise them, and determine what tools and resources are available for the participants' ways of coping.

In chapter 9 I combine the quantitative and qualitative results and describe the empirical findings from both approaches. In this chapter I explore the formal and informal group differences in coping and their development of time. I specifically look at the social and cultural practices within the groups as well as the management practice

In chapter 10 I present the main results and discuss the theoretical and methodological issues and limitations of the study.

CHAPTER 2: A CRITICAL EXAMINATION OF THE CONCEPT OF STRESS

2.1. STRESS DEFINITIONS AND THEIR THEORETICAL COUNTERPARTS

The term “stress” has its origins in physics rather than in psychology and physiology. Essentially it is a term used in engineering to describe the effect of a mechanical force that places strain or pressure on an object (Frydenberg, 2014). For most people, the term indicates the condition in which the demands people face exceed their resources to handle them, and a range of different physical and psychological symptoms emerge. But this common understanding of stress has not always been prevalent. The term “stress” has undergone several transitions from referring to a physiological condition in the 1930s, to a psychological condition in the 1950s, to a work environmental condition in the 1970s, and today it has developed into what Viner (1999) has described as

“a deeply held modern metaphor and a unquestioned explanation for the darker sides of human experience”

(p. 392).

Parallel with this development, one of the main discussions concerning stress is how to define it within the scientific community. Soderberg argued in 1967 that stress was *“the most grandly imprecise term in the dictionary of science”* (Newton, 1989, p.442), which Newton in 1989 argued *“is a comment that still seems apt to researchers’ current attempt to define it”* (p. 442). The same comment can probably be made in 2014. This contributes to a research practice where the assessment of stress is not standardized and many different measures and definitions of stress are used.

Dewe has stated that it is almost traditional for writers on stress to begin by pointing to the lack of agreement when defining the term (Dewe, 2000). The primary focus in research on work environment has developed from the direct relationship between work characteristics and psychological distress (e.g., Karasek & Theorell, 1990) to a combination of the magnitude of the stressor and the resources available to manage it in understanding individual distress (e.g., Siegrist et al., 2004), followed by an attempt to combine the models (Rydstedt et al., 2007) or create more coping-oriented models, such as the job demand-resources model (Bakker & Demerouti, 2007).

The focus on a direct relationship between work characteristics and psychological

distress is represented by the work of Robert Karasek, who has developed a widely tested model: the demand-control-support model (DCS) (Karasek & Theorell, 1979, 1990, 2006; Theorell & Karasek, 1996). The DCS model suggests that the combination of high job demands and low social support and/or low job control is likely to result in job strain. Johannes Siegrist tried to incorporate psychological factors with work-related factors by focusing on the idea that when a high degree of individual efforts to manage high demands does not return with adequate rewards, such as pay, then individual distress occurs, also named the effort-reward imbalance model (ERI) (Peter & Siegrist, 1999; Siegrist, 1996, 2000; Siegrist et al., 2004).

These work environmental models attempt to operate with both an objective concept of risk factors and an objective concept of stress as something that can be measured objectively. They seek to detect specific risk factors in the environment that can explain the development of stress. Within these studies, stress is typically defined as a result of a misfit or imbalance between the demands of the encounter and the resources of the individual (Cooper & Dewe, 2004). According to Cooper & Dewe (2004) one of the difficulties with the work stress models is that they fail to identify the elements that link the person and the environment.

Both models have been criticized for a lack of support of the interactions between their components (Beehr et al., 2001; De Jonge & Kompier, 1997; Van Der Doef & Maes, 1999; Van der Vegchel et al., 2005). For instance, a review of 63 studies of the demand-control model with psychological strain as the outcome published between 1979 and 1997 concluded that only 15 studies supported, at least partially, the interaction between job demands and control (Van Der Doef & Maes, 1999). According to Wainwright and Calnan (2002), one of the explanations for the inconsistent results is the use of self-reported data, and the several attempts to overcome the self-report bias reflect what they term *“the epidemiological fallacy that pathogenic agents can be absolutely separated from the host”* (p. 54). It is the artificial separation of the individual and the environment that seems to have limited the exploration of how individuals make sense and ascribe meaning to different work characteristics and how these processes do not just occur in the head of the individual but are embedded in the environment. Wainwright and Calnan (2002) have argued that stress is due neither to objective work conditions nor to personal characteristics but the relationship between the two, mediated by subjective perceptions of the working conditions. In this thesis I try to describe how these perceptual or evaluative processes are deeply embedded in the sociomaterial surroundings.

Subjective perceptions of working conditions are at the fore in psychological research within stress, which primarily extends the work of the American psychologist Richard Lazarus. His foundation was a transactional understanding of stress, where he emphasized that stress is developed through a transaction between individual factors and environmental factors. He initially defined stress as a mismatch of the perceived demands of a situation and the individuals' assessment of his or her resources to deal

with these demands” (Lazarus, 1966).

The current and elaborated definition of stress is

“a particular relationship between a person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being”

(Lazarus & Folkman, 1984, p. 19).

The definition reflects the two processes he emphasized as central in the stress process: appraisal and coping. Cognitive appraisal is defined as a process through which a person evaluates whether a particular encounter with the environment is relevant to his or her well-being and, if so, in what way (Folkman & Moskowitz, 2004). Coping refers to

“constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person”

(Lazarus & Folkman, 1984, p. 141)

This approach addresses the mediating role of the individual in the relationship of environmental characteristics to the development of stress, but as Wainwright and Calnan (2002) also have noted, the cognitive approach to stress has largely focused on appraisal and coping in a highly individualized and ahistorical way, focusing on how personality traits influence the appraisal and coping process. This theoretical framework thus needs to be further developed in order to accentuate how appraisal and coping are not just an individual process but also a social, cultural, and material process. The definition developed by Lazarus is open toward a discursive interpretation in which a person’s assessment and appraisal of the situation is closely connected with the person’s discursive framing of the situation. What I attempt to describe is how the person’s assessment and appraisal of the situation is embedded in a distinct social and cultural material environment, which thereby mediates the person’s ways of coping with the situation.

Newton has stated that defining stress is important as a *“mechanism for confronting the all-important question of why we believe the current representation of stress”* (Newton, 1995, p. 10). With this statement he situates the definitions as different discourses and argues further that when we define stress we need to move toward a language of stress that is less individualistic and more focused on the wider social and power relations of the workplace (Newton, 1995).

Within this study I aim to develop a language of stress that embraces the contextual factors that can shape individual stressful experiences with the introduction of the distributed perspective of stress. This perspective is described more thoroughly

in chapter 3, but in order to construct a new framework I will have to deconstruct the old one by rereading the history of the cognitive understanding of stress from a sociocultural perspective. I will initially explore why some definitions and discourses have prevailed and not others. I find this question relevant for two reasons: (1) The prevailing definitions and discourses entail a sense of objectivity, and without a historical perspective, we fail to adequately examine our own assumptions (Cooper & Dewe, 2004) as well as incorporating new ways of thinking about work stress. (2) History furthermore provides an understanding of why certain ideas may be more acceptable at one time than another and thereby addresses the influence of sociocultural factors on the production of knowledge about stress (Cooper & Dewe, 2004). This way of thinking and addressing the concept of stress enhances a critical perspective toward contemporary lines of thought within stress research.

2.2. HISTORICAL TRANSFORMATIONS IN THE CONCEPT OF STRESS: A HISTORY OF STRESS DISCOURSES.

Everyday conversations and various media reveal that stress has become a part of our everyday language and a part of a commonsense description of our psychological state, or as Viner stated, “*a modern explanation of the interaction of mankind with its environment*” (1999, p.391). But there are different discourses of stress that are to some point contradictory: *the work stress discourse* (Wainwright & Calnan, 2002) and *the individualistic stress discourse* (Donnelly & Long, 2003). Wainwright and Calnan have described the work stress discourse as focusing on a series of causal relationships between changes in work, the experience of work stress, and negative effects on health. The discourse furthermore entails different kinds of interventions: reversing the damaging changes in work, practicing “good management,” and providing therapy for the individual worker (Wainwright & Calnan, 2002). They argue that this discourse transforms the human being into a passive subject and call for attention to “*the active subject that makes sense of his or her experiences and choosing how to act within and against structural and discursive constraints and imperatives*” (p. vii).

Donnelly and Long (2003) describe another stress discourse, which they label “*individualistic stress discourse*” and which also is prevalent in Western societies. The individualistic stress discourse is characterized by specific assumptions about the nature of stress. The theme is that stress is seen as an inevitable part of modern living with which people must cope. Furthermore, too much stress is harmful, and the responsibility to cope with stress rests within the individual. Finally, inherent vulnerabilities predispose individuals to develop stress (Donnelly & Long, 2003). The consequences of the individualistic stress discourse are that it places the responsibility for the causes of stress, as well as the responsibility to cope with stress, on the individual.

Pollock (1988) has also argued that lay and scientific theories of stress share many similarities and that they are to some extent mutually reinforcing. These two discourses also resemble the two lines of research previously described, work environmental research and psychological cognitive research in stress, and reflect the artificial separation between the individual and the environment characteristic of traditional stress research, which has important implications for workers. Lewig and Dollard (2001) have described two consequences of the relationship between everyday beliefs and scientific theory: (1) Theories about the causes and consequences of stress can determine people's expectations of what causes stress in themselves and others, which can lead to, e.g., a reticence to report stress. (2) Institutions select knowledge of risk in accordance with their own ideological perspectives on how society should be organized, which can have the consequence that the worker assesses risk in terms of social norms rather than scientific evidence.

Within the scientific discourse on stress, Wainwright and Calnan (2002) have clearly identified an ideological component and argue that the processes used to gather data, as well as the theoretical knowledge used to interpret data, are historically determined. In the following section, I follow this line of thought and address the historical development of the individualistic stress discourse, which seems to share elements with the cognitive understanding of stress. The reason is that this study is grounded in the concepts of appraisal and coping, and I am particularly interested in exploring the cultural, social, and political context in which these concepts were developed. It could contribute to an understanding of why this specific theory, with its inherent logic and understanding of human perception and action, was developed and why it was adopted into the personal narratives of modern life.

The aim of the analysis is thus to explore the development of the psychological and individualistic concept of stress and, further, the adoption of the scientific concept into the personal narratives of modern life.

The concrete development of the psychological concept of stress can be found in the research laboratories of Johns Hopkins University in 1952, which was the year the psychologist Richard Lazarus was employed. The popular origins of stress can be found in his well-received book on coping in 1966, but this does not explain how the concept can be so popular and widespread that it has developed into "*a modern metaphor*" (Viner, 1999) and not just a scientific concept. I argue that the development of the psychological concept of stress is to be found in the specific cooperation Lazarus had with the military, whose research on how to avoid emotional breakdown in soldiers during war seemed to shape Lazarus's research focus. The expansion of the cognitive stress discourse is to be found in the transitions from specific production and organization forms to new and more flexible organization forms that share a cultural logic with the cognitive stress discourse.

In the next sections, the different transformations of the concept of stress are described.

Because the focus is on the historical development of the concept of stress, the chapter is concerned with the formative period of the concept of stress, and World War I is taken as a marker of the beginning of that period. As my interest is specifically in the individualistic and cognitive way of understanding stress, I also have to limit the scope of my analysis to one part of the history of the concept of stress: the emergence of the cognitive understanding of stress, which arose in relatively recent times and whose practical enactment belongs to an even more recent period.

2.2.1. STRESS AS A NEUROLOGICAL CONDITION

Stress as a condition and the debate about this condition has always been present even when the term “stress” was not used, but at the beginning of the twentieth century, it started as a research area. The research was at that time focused on fatigue and mental hygiene, which were seen as a sign of individuals’ problems adjusting to modern life (Cooper & Dewe, 2004).

According to Cooper and Dewe (2004), the interest in these symptoms stemmed from managers’ concern for worker productivity and the problems it created for industrial efficiency. But it was during World War I that the interest in stress began growing out of a focus on emotional breakdown caused by the war. The term “stress” was not used, but terms such as “*shell shock*” and “*nerve shock*” were prevalent. In 1915 the first articles about “stress conditions” appeared. D. Forsyth, in the article “*Functional nerve disease and the shock of battle. A study of the so-called traumatic neuroses arising in connexion to the war,*” described a number of human reactions to and symptoms of war experiences during World War I (Forsyth, 1915). Another article from 1915 was “*A contribution to the study of shell shock,*” where Feiling studies shell shock more thoroughly (Feiling, 1915).

In 1916 the term “*war neuroses*” began to appear in research (Eder, 1916) and resembled the stress concept as we know it today. There was an incipient attempt to examine the symptoms of war neurosis on civilians (Lumsden, 1916), but the main interest was primarily in people at war. Moreover, the interest was more neurological than psychological because many researchers thought the dysfunction was the result of brain damage caused by the sound of exploding shells (Lazarus, 1993). After World War I interest in this condition declined, and it was not until 20 years later that the interest reappeared, now as a physiological interest, and the condition was termed “stress” for the first time. Hence, the transformation was from a neurological dysfunction caused by a specific external stimulus to a physiological defense reaction.

2.2.2. STRESS AS A PHYSIOLOGICAL CONDITION

Walter Cannon initiated a physiological approach to stress in 1930; he was interested in the physiological changes that occurred when an organism prepared to fight or flee in response to environmental stimuli. Cannon interpreted his empirical observations in a Darwinian theoretical framework; he interpreted the physiological changes as a result of evolutionary pressures, and those who could manage to either fight or flee had the best chances of survival (Wainwright & Calnan, 2002). The relationship between environmental stressor and the organism was interpreted as strictly physiological and automatic, and he did not address the mediating role of the interpretations of the individual.

Hans Selye expanded on the work of Cannon and broadened the concept of stress to encompass a focus on negative health consequences. In 1936 he used the term “stress” to describe a nonspecific physiological defense reaction in experimental animals and defined “stress” as the sum of all nonspecifically induced changes in a biological system (Viner, 1999). From his research he came to understand disease and health in terms of successful or unsuccessful adaptation by an organic system in response to environmental agents. Selye named the nonspecific signs of bodily damage “*general adaptation syndrome*” and used “stress” to describe the state of an organism in adaptation and response to the environment. Unlike Cannon, Selye was not concerned solely with physical stressors but included psychological and emotional stressors in his understanding of physiological changes. Viner has argued that the expansion of stress theory developed by Selye was partly due to the role of the Second World War and the concerns with human aggressions and military concern for battle stress (Viner, 1999). The military concern with the emotional breakdown of soldiers was also central in the development of the cognitive theory of stress represented by Lazarus, and a transformation from the study of the physiological organism to the study of thought emerged, with a focus on the mind’s conceptualization of stressors instead of actual external stressors.

2.2.3. STRESS AS A COGNITIVE CONDITION

In this section I examine how a new understanding of stress is produced in specific institutional arrangements with specific actors. Lazarus’s research and theorizing about stress seem to be an exponent of the development of cognitive stress research, and the question then is about what conditions enabled this development. I argue that the relation between psychological research and the military functioned as a condition for the emergence of cognitive stress research. Furthermore, the goals of the military provided a specific frame for understanding the development of stress, thereby shaping a distinct internal logic of the cognitive understanding of stress. The development of cognitive stress research begins with Lazarus and his relation to the military as well as Johns Hopkins University’s collaboration with the military.

The collaboration between scientific research and military interests began in 1942, when the director for Office of Strategic Services (OSS), General William J. Donovan, began to show interest in the collection of knowledge in relation to military operations. The inspiration came from the Nazis' use of psychological warfare, and psychological warfare became a part of the information collected by the OSS through cooperation with universities.

This cooperation seems to have had a great influence on the development of cognitive stress research. In 1948 the Department of Army began cooperating with Johns Hopkins University, and the Johns Hopkins US Army Operations Research Office (ORO) was constituted at the university. This was a research unit that conducted contract-based research for the military and through which the military could get scientific operation research about national security, ORO concentrated on stress research and arranged at the university in 1952 and 1953 the symposiums "*Fatigue and stress*" and "*Delayed stress syndrome: Symposium of the role of stress in military operations*" (Bonder, 2002).

At the same time as ORO was constituted at Johns Hopkins University in 1948, Lazarus was employed at Johns Hopkins University, and shortly after, he began contract-based research for the military. According to Lazarus, it was his work for the military that started his interest in individual differences in the stress response (Lazarus, 1993). Soon Lazarus became head of a major program of laboratory research, funded by the US air force, into the effects of stress on task performance (Wainwright & Calvan, 2002).

According to Lazarus, the military had an interest in how to select stress-resistant men and train them to cope with stress, which led to a number of contract-based studies in the 1950s such as "*The effects of psychological stress upon performance*" (Lazarus et al., 1952) and "*Effects of failure stress upon skilled performance*" (Lazarus & Eriksen, 1952). The research led Lazarus to conclude that it was individual differences in cognitive variables that was of interest in the stress response.

Furthermore, Lazarus was also inspired by the book "*Men under Stress*" by Grinker and Spiegel (1945), which was one of the earliest contributions to the concept of stress. It concerns the soldier's function in battle and how stress could make soldiers more vulnerable to being killed or weaken a group's potential for action (Lazarus, 1993). According to Lazarus (1993), the inspiration from this book contributed to the development of the concept of appraisal which as previously described refers to a process through which a person evaluates whether a particular encounter with the environment is relevant to his or her well-being and, if so, in what way. According to Lazarus he used the term 'appraisal' to signify that it was a judgment about the significance of an encounter (Cooper & Dewe, 2004). Lazarus began theorizing about appraisal and identified two kinds of appraising: primary and secondary. Primary appraisal addresses the significance of the encounter – is it threatening, challenging

or beneficial toward the persons' wellbeing. Secondary appraisal refers to the process that focuses on evaluating the coping options (Lazarus & Folkman, 1984).

This initial interest in stress was thus primarily focused on performance and vulnerability in relation to stress as well as the subjects' definition of the situation and these elements were explained by individual differences.

The 1960s was a turning point for stress research, as coping now was considered the most important part of the stress reaction. Lazarus played an important part in this shift with his book "*Psychological Stress and the Coping Process*" (1966), where he focused on coping instead of stress (Lazarus, 1993). Coping refers as previously described to a person's cognitive and behavioral efforts to manage (reduce, minimize, master, or tolerate) the internal and external demands of the person-environment transaction that is appraised as taxing or exceeding the person's resources.

The theory identifies two processes, cognitive appraisal and coping, as critical mediators of stressful person-environment relationships.

Now the interest was in the role of the individual in the stress process and less in risk factors from the environment or the physiological processes. During late 1960s and 1970s, the interest in coping and stress exploded, as could be seen in the vast number of articles and books on the subject (Cooper & Dewe, 2004).

The internal logic of the cognitive understanding of stress seems to reflect the interest of the military in different ways. The military was interested in separating the vulnerable at war and thus in researching individual differences in vulnerability to emotional breakdown and stress. Furthermore, it was interested in how to optimize and shape soldiers to adjust to the inhuman experiences a war might cause. The context in which stress and coping was studied was soldiers' experiences with single situations on the battlefield, and the focus on stress was narrowed down to one stressor, one encounter. Hence, specific concepts became central, such as vulnerability, optimization and performance, adjustment, and single situations, and cognitive stress research became centered on these concepts. Individual differences in coping explained why some soldiers experienced emotional breakdown and others did not. The optimization of individuals was to identify effective ways of coping in order to avoid emotional breakdown and thereby adjust to the conditions.

The cultural logic inherent in this approach comprises elements such as *optimization of the individual, the importance of individual differences in coping, linking personality features such as vulnerability to coping, linking performativity to coping, individual coping, adjustment to context*, and a focus on *single situations*, but what if the elements' opposites were addressed? What kind of knowledge of stress do we gain by examining coping as *the optimization of others, the contextual differences in coping, linking environmental features to coping, collective coping, altering the context, a variety of*

interrelated factors, and accumulated processes of stress?

These opposing elements are each addressed in this study, further outlined in chapter 8 and in the discussion section in chapter 10.

2.2.4. TRANSFORMATIONS IN ORGANIZATION FORM AND THE ACCEPTANCE OF THE COGNITIVE STRESS DISCOURSE.

The process of accepting stress both publicly and scientifically seems to correlate with the augmentation of the cognitive understanding of stress, and it is further argued that this partly can be due to new production and organization forms as these new forms correspond to the cultural logic of the cognitive understanding of stress.

Kvale (1976) identifies the relation between production forms and psychology and points out how the transition from craft manufactory to industry correlates with transitions in psychology with the rise of behaviorism. He argues that the new work form, also called human engineering and behaviorism, has both prediction and behavior control as parameters, and the behaviorists' denial of consciousness, meaning, and personal choice can be compared to the mechanization of production (Kvale, 1976). From this perspective, it can be argued that the transition from industry toward more organized intellectual work is related to the acceptance of the cognitive understanding of stress both scientifically and publicly.

According to Kvale, the transition from mechanical, repetitive operations on an assembly line to more complex, organizational, and computerized work corresponds to the transition from the behaviorist paradigm in psychology to bureaucratic computer models of mental life (Kvale et al., 1977).

Within industry the body was central to manual work, and mental processes were abstracted from the body, but there is now, with intellectual work, focus on the mental processes, and it is the body that is abstracted. This process corresponds to the transition in focus from physiological processes in the body in understanding stress to psychological and mental processes in the cognitive understanding of stress, an understanding that emphasizes individuals' perception and evaluation of their surroundings. Hence, both the production form and the understanding of stress have become more mentalist, intellectualized, and psychologized.

The transition from one production form to another demands new abilities from employees. According to Kvale, the transition from mechanical work to automation and a hierarchical and flexible technology demands a more individual and creative approach to work, and education is important because the transition has turned toward more organized intellectual work (Kvale, 1976).

New abilities are also demanded from employees in the transition from a traditional organization form to a flexible organization form. The latter is characterized by a shift from external control to self-control and self-discipline, which does not mean that discipline disappears but that employees must discipline themselves. Another characteristic is that bureaucratic forms and routines are replaced by more flexible organization in order to adjust to the globalized market (Sennett, 1999). According to Sennett (1999), the new abilities demanded from employees are the ability to react quickly, be prepared for changes with short notice, take risks, and be more independent of rules and formal procedures. Hence, employees' adaptation to a changing labor market, optimization of the individual, and enhancing of self-control and self-discipline seem to be characteristic of the flexible organization form.

The cultural logic within the flexible organization form and the cognitive understanding of stress resemble each other. The cognitive understanding of stress also focuses on the optimization of the individual and, more importantly, on self-control and self-discipline as a means to regulate emotions and thereby help the individual adjust to stressful settings. It can be argued that the flexible organizational discourse creates a need for self-regulation techniques to adjust to changing work life as external control has decreased. The cognitive stress discourse provides self-regulation techniques that help the individual adjust to stressful settings.

This shared cultural logic between the cognitive understanding of stress and the flexible organization form functions as a discursive relation and thus partly explains how the cognitive stress discourse grew and spread through different terrains.

2.2.5. THE REFORMULATION OF THE COGNITIVE STRESS DISCOURSE WITHIN A WORK ENVIRONMENTAL SETTING

There is a specific interplay between the development and the expansion of cognitive stress research. The interplay is that the cognitive stress discourse was originally formulated within a military context and has shifted to another and different context: the work environmental setting. Hence, it has moved from a hierarchical structure with discipline and control to a flexible organization form with self-discipline and self-control – two different social models.

An interesting question is then: Because cognitive stress research developed from an interest in helping soldiers to adapt to stressful settings, what happens when this understanding of stress is translated into people's work life? In the following, five consequences are outlined:

First of all, the focus on specific combat scenes in the understanding of stress is reflected in a focus on single situations in the theoretical framework and definition.

“Situation” within this framework refers to a more traditional understanding of a situation as a single event. Dewey has argued that psychologists tend to perceive situations in a reductive way (Cole, 2003). Situation is, according to Dewey, not a single event; individuals perceive events not as isolated but in a contextual wholeness. He further argues that one event is always a certain part, phase, or special aspect of the surrounding and experienced world – a situation (Cole, 2003). The reductionist notion of situation is still prevalent in the cognitive understanding of stress and also in the rather new attempt to integrate a situational perspective on stress through the concept of situational coping. Situational coping refers to how a specific stressor or specific event influences the coping practice (Pienaar, 2008). An understanding of a situation as a single event within a work environmental context is problematic because the work environmental context entails a variety of contextual factors. This understanding limits the focus on both the variety of contextual factors involved in the development of stress and the accumulated processes of stress.

Second, the interest in the actual context was limited due to the interest in the perceptions and actions of the soldiers. The actual context, with its risk factors, was not questioned because the interest was in how to help soldiers adjust to the war. The focus on adjustment seems to have consequences when reformulated within a work context because the employee then has to adjust to many different situations owing to the flexible organization form and constantly changing work life. Another consequence is that employees come to interpret the work environmental problems as their own responsibility, caused by failed coping strategies, instead of as a common problem at the workplace.

Third, the reformulation of the psychological understanding of stress within a work environmental setting also contributes to the focus on optimization of the individual, and thus optimization of coping skills is formulated within a humanistic discourse and becomes a part of a positively formulated developmental ideal for the individual. The interest in the optimization of coping skills is prevalent in the coping literature in the sense that focus is on how the individual can cope so he/she can benefit instead on focusing on the beneficence of others (Banyard & Graham-Bermann, 1993). Banyard and Graham-Bermann (1993) have further argued that coping has to be conceptualized not only as actions toward the individual but also as actions related to helping other people, and they introduced the term “relational coping”.

Fourth, the focus on individual differences has also restricted a further look into the contextual differences in coping and thus how different factors within the work environment influence how people cope. Wainwright and Calvan (2002) have identified two lines of research in coping, one emphasizing affective dispositions or personality and the other viewing coping as internal resources that can be learned. This reflects a highly individualistic approach to the understanding of coping, and as Wainwright and Calvan also point out, coping is mainly examined from a cognitive rather than a situational perspective (understood more broadly than the reductionist

understanding of situation), such as how socioeconomic position enables people to cope (Wainwright & Calvan, 2002). Hobfoll has argued that coping research does not focus on the different access individuals have to coping due to the specific contextual practices they enter or the different coping resources their position in society provides them (Hobfoll, 2001). He has specifically focused on individuals' socioeconomic position, color, age, and gender; others within organizational research have argued that the organizational position, power structures within the organization, etc. also provide different access to coping (Long & Cox, 2000).

Fifth, the fact that vulnerability and performance are linked to coping contributes to a certain kind of normativity in the understanding of coping, and coping within a work environmental context is consequently linked to how individuals cope most effectively in relation to the changing environment. The problem occurs when failed coping strategies are attributed to vulnerability and effective coping to resilience within an individual, which takes the attention away from barriers to coping within the work environment. Long and Cox (2000) have argued that the line of research that focuses on the effectiveness of coping has an overemphasis on personal agency and problem solving and thus also embraces a certain ideal of the autonomous and individual self. This overemphasis on personal agency implies that interpersonal and collective ways of coping have been largely ignored, with notable exceptions (Handy, 1995; Hobfoll, 2001; Lämsä et al., 2000; Monnier et al., 1998; Muhonen & Torkelson, 2008; Peiro, 2008).

This chapter has emphasized that the dominant way of understanding stress has become so, not necessarily because of its better fit as a theory, but because other factors have promoted it. It furthermore points to how the context within which the theory was developed tuned the attention toward specific parts of reality and was subsequently sustained by other contextual developments. This perspective naturally focuses on what kind of knowledge about stress has been subjugated. With these points in mind, a relevant question is therefore: What kind of knowledge can we gain about stress if we consider the contextualized, social, situated, and collective perspectives on appraisal and coping?

In the next section, I go further into two attempts to contextualize the concepts of appraisal and coping, and thus the theory of Lazarus, which has been an inspiration for me during my research process. I also argue why I abandoned the concept of collective appraisal and coping, a turn that led to the development of the concepts of distributed appraisal and coping described in chapter 7.

2.2.6. THE COLLECTIVE NATURE OF STRESS

The literature on the collective nature of stress is characterized by its diversity in terminology, conceptualization, theoretical foundation, and application, as well as by its scarcity. Afili et al. (2006) have argued that because it is a relatively new way of thinking about coping, researchers are struggling with how to conceptualize it. The most widely used concepts are those of *collective appraisal and coping* (Länsisalmi et al., 2000; Muhonen & Torkelson, 2002; Peiro, 2008) and *communal coping* (Afili et al., 2006; Hobfoll, 2001; Lyons et al., 1998).

The concept of collective appraisal and coping is based in appraisal theory represented by Lazarus and adds a collective dimension to the theory by addressing the cultural influence on the appraisal and coping process.

Collective appraisal is defined as

“when members of a particular organizational culture as a group develop shared perceptions of a given situation and they interpret it as being threatening or as beneficial”

(Peiro, 2008, p. 299).

Collective coping is defined as

“the learned, uniform responses that members within the culture manifest when trying either to remove the stressor, to change the interpretation of the situation, or to alleviate the shared negative feelings it produces”

(Länsisalmi, 2000, p. 528).

In the literature, collective coping is conceptualized differently and entails three different perspectives on what the term actually means: a process shaped by social and cultural factors (Kuo, 2013; Länsisalmi, 2000), a specific collective coping strategy (Länsisalmi et al., 2000), or the use of social-oriented coping strategies such as seeking social support (Muhonen & Torkelson, 2008). Peiro (2008) has tried to compensate for this diffusion by distinguishing between the understanding of coping as a process shaped by social factors and as a concrete collective coping strategy through the introduction of the concept *coactive coping*, which occurs *“when individuals in a group use similar individual ways of coping owing to social pressure or shared perceptions”* (p.302-303). Collective coping he then defines as *“when a group, faced with a common perceived threat or noxious situation, collectively initiates actions to prevent the stressful situation”* (p.303).

Collective appraisal and coping have been applied within many different research disciplines. The main part of these studies has been conducted within catastrophe psychology (Kaniasty & Norris, 1993; Pennebaker & Harber, 1993; Rime et al., 2009) and culture-specific coping (Constantine, 2005; Kuo, 2013) while a more limited part

has been conducted within work and organizational psychology (Länsisalmi et al., 2000; Muhonen & Torkelson, 2008).

Within catastrophe psychology, the findings show that coping is constructed jointly among people in order to face their shared stressful experience (e.g., Kaniasty & Norris, 1993), whereas culture studies primarily focus on cultural variability in coping responses. A review conducted by Kuo (2013) showed that there is cultural variability in coping patterns across national, racial, and ethnic groups and that cultural specificity in coping is related to cultural dimensions such as collectivism-individuality and interdependence-independence, as well as specific collectivistic values that shape specific coping behaviors in different cultural populations. For example, cultures with collectivistic norms and values encourage collective coping behaviors in a variety of strategies, such as acceptance, avoidance, focusing on the positive, and seeking support (Fischer et al, 2010; Heppner et al., 2006; Kuo et al., 2006). Within this research area, collective coping behaviors are conceptualized as a constellation of multifaceted stress responses shaped and enhanced by collectivistic norms, values, and tendencies.

Within work and organizational psychology, a qualitative study showed that three different departments of an organization with same stressors differed in their appraisals of the stressors and their coping practices (Länsisalmi et al., 2000). The differences emerged due to different cultural narratives within the departmental subcultures, which produced specific ways of coping with the stressors. Based on the concept of collective coping as social-oriented coping strategies, a survey study by Muhonen and Torkelson (2008) did not address the cultural narratives but examined how the work situation influenced employees' range of coping options. Their study indicated that managers used the collective strategies of seeking instrumental support and social joining more than nonmanagers. Furthermore, the managers also used more problem-focused individualistic strategies compared to nonmanagers. The authors concluded that employees who were higher up in the organizational hierarchy may have had access to problem-focused and collective strategies to a greater extent than employees at lower levels.

A similar concept is communal coping, which

“occurs when one or more individuals perceive a stressor as ‘our’ problem and activate a process of shared or collaborative coping”
(Lyons et al., 1998, p. 583).

A shared stressor is, in this perspective, defined as a stressor that is appraised as co-owned and that also contains a shared responsibility for coping with the stressor, which manifests through attempts to resolve the problems together instead of perceiving problems as an individual's own problem and responsibility (Afili et al., 2006; Hobfoll, 2001; Mickelson et al., 2001).

According to Hobfoll et al. (2002), the difference between the concept of collective coping and communal coping is that the former assumes that a group of people responds to a stressor in some sort of aggregated fashion while the latter requires that the members of a group assume mutual responsibility for a stressor and act on it together in a proactive manner. Hence, according to Hobfoll, communal coping is more than a collective effort where people come together and act jointly, because the appraisal of the stressor as a shared responsibility, as well as the shared process of coping with it, is central in this definition (Hobfoll et al., 2002).

Theoretically, communal coping stems from the conservation of resources theory (COR), which has its foundation in literature from Antonovsky (1979), the early developer of resource-based theories (Hobfoll et al., 2002). Within this perspective, focus is on psychological and environmental resources for coping and their availability within the many areas of life (Hobfoll, 2001; Lyons et al., 1998). Examples of resources within this research area are good marriage, financial stability, acknowledgement of accomplishments, positive feeling about oneself etc. so resources are broadly defined. Stress occurs from this perspective if resources are threatened or lost and individuals cannot see a path to the protection of resources (Hobfoll, 2001). Studies within communal coping have mainly been investigated dyads in families and social groups outside the workplace, and the studies have indicated that when multiple family members experience the same stressors, they jointly construct and manage their stress and coping with one another communicatively (Afili et al., 2006; Hobfoll, 2001). Common to both concepts is that they focus primarily on collective coping as a cooperative effort and on the shared processes in groups that shape these cooperative efforts.

I needed a concept that focused on coping that lacked the collective connotations, one that focused on how coping could be culturally shaped but not necessarily performed cooperatively. Furthermore, the focus on shared processes in groups within both concepts seemed to put aside the material and work environmental embeddedness of coping individually as well as collectively.

For these reasons, I left behind the concept of collective appraisal and coping and redefined Lazarus's concepts of appraisal and coping from theoretical perspectives such as cultural psychology and the theory of distributed cognition, which are described in the next section.

CHAPTER 3: THEORETICAL CONSIDERATIONS

The literature on the collective nature of stress called for a wider approach. I needed a theoretical approach that, in its philosophical and epistemological perspectives, had a contextual understanding of the human being in the broadest sense. And I needed a theoretical approach that integrated the individual, social, and cultural perspectives and from which I could redefine the concepts of appraisal and coping. Therefore, I chose the cultural-psychological perspective represented by Valsiner and the theory of distributed cognition, which is addressed in the following section.

3.1. A HERMENEUTIC AND PRAGMATIC LINE OF THOUGHT

The epistemological and ontological perspectives within the cultural-psychological perspective and the theory of distributed cognition are outlined in this section. The cultural-psychological perspective and the theory of distributed cognition both belong to the hermeneutic and pragmatic line of thought.

The ontology of hermeneutics is that individuals have their own reality, but it is part of a larger historical, societal, institutional, and cultural context, in which the individuals' reality is embedded and from which it has to be understood in order to be seen completely. The epistemology of hermeneutics is that knowledge of the world proceeds from individuals' interpretation and meaning making of the context within which they are embedded (Sonne-Ragans, 2012).

The ontology of pragmatism is that reality is shaped through individuals' engagements and activity within the world and with each other and thereby reflects an understanding of the individual as embedded in the context and has to be understood through an understanding of the context. Knowledge of the world thereby proceeds from activity in the world and is shaped within collective and social processes (Sonne-Ragans, 2012). A research methodology thus involves understanding how people make sense of their world, define the situations they are in, and act accordingly.

These approaches both share an understanding of reality as something that can be grasped only through an individual's interpretation and/or action in the world. Both these traditions are inherent in the cultural-psychological perspective and the theory of distributed cognition as it aims to explain context-relatedness of human acting, feeling, and thinking and are concerned with the role that culture plays in the meaning-making process.

3.2. CULTURAL PSYCHOLOGICAL ANTECEDENTS

Cultural psychology has a primary antecedent in the cultural-historical school of thought. Lev Vygotsky (1896–1934) was a proponent of this school of thought and developed his theoretical perspective during the 1920s. Central in this theoretical framework is the ontological view on sociogenesis, the view that the human mind is social because of the historical emergence of the mind in a social context. Through an analysis of human phylogeny, Vygotsky argued that the creation and use of tools – material and semiotic – changed our mental processes radically. This double process of creating tools and using them through our practical activity constantly changes our mental processes and relates to the concurrency of humans shaping the environment as the environment shapes humans (Valsiner & Van der Veer, 2000).

This developmental and social perspective Vygotsky further elaborated in his focus on the emergence of psychological phenomena through social means. This process entails three central processes: artifactual mediation, historical development, and practical activity (Cole, 2003).

Artifactual mediation refers to how psychological processes emerge concurrently with a new form of conduct where people transform material objects into tools to regulate their interaction with the world and each other. This understanding emphasizes how practical intelligence existed before the appearance of speech. Vygotsky made an important distinction between tools (material tools) and signs (language), which is reflected in the work of cultural psychology. In his understanding of human thought and action, he acknowledged both things and signs as equally important and part of the same psychological function (Valsiner & Van der Veer, 2000).

Historical development refers to how the production and use of tools is transferred to the next generation. Human beings enter into what is termed an “enculturation process,” where they become cultural beings and recognize that others have become cultural beings also. Culture is, in this perspective, the accumulated artifacts of the group. Because of the historical accumulation of artifacts and their integration into people’s activity, Vygotsky argued, all thought processes have a social origin; they are social both in their origin and in their dynamic of transformation (Cole, 2003).

Practical activity means that an analysis of the psychological functions of a group must be based on the everyday lives of human beings because it is through their activity that human beings experience the ideal and material transference of the former generations’ activity (Cole, 2003).

These theoretical underpinnings are found in cultural psychology and reflect that the view of human psychological functioning as cultural is not a new invention. Valsiner and Van der Veer (2000) argued that every time a cultural approach to human functioning re-emerges, it is presented as a new invention, but it is merely the particular terminology that is new and not the basic structure of the thought. What we

also have seen during the last decades is different fragments of this school of thought emerging through different turns.

During the 1970s we witnessed *the linguistic turn* as language and discourses became the center of analysis, inspired by theoretical positions such as poststructuralism and social constructionism. Through the years the linguistic turn has been criticized for focusing solely on language and discourses and ignoring the interdependence with the world “out there” and with the body. This criticism can in part explain the emergence of what researchers have named *the spatial turn*, which has taken place within the last years and entails a reorientation toward objects, space, bodies, and materiality in understanding human social practice (Tanggaard & Brinkmann, 2010). The spatial turn does not deny the importance of language and discourses but amends the focus on language and discourses and an individualistic understanding of human social practice (Brinkmann & Tanggaard, 2010). Linell has furthermore argued that a *dialogical turn* is taking place, as the focus now is on the interdependence between language, human action, interaction, and thinking, and that language is dialogue (Linell, 2009).

These different turns within psychology and social sciences are reunited and further elaborated in cultural psychology, described in the next section.

3.3. CULTURAL PSYCHOLOGY

Cultural psychology has a number of predominant schools that all focus on explaining contextual embeddedness of human acting, feeling, and thinking and are concerned with the role that culture plays in the process of sense-making and interpretation of experiences.

The different directions within cultural psychology place different emphasis on the impact of the context we are situated in. Valsiner is an exponent of what I call an integrated version of cultural psychology because he tries to integrate a personal element into culture and thus understands culture as partly shared and partly personal. He has emphasized this distinction through the concepts of personal and collective culture (Valsiner, 2007). We have our personal history and past experiences, which interact with the guiding social suggestions in the form of, e.g., cultural values and shared meanings of how to think and act. Depending on personal constitution, individuals internalize cultural suggestions and find some form of translation in the mind of these cultural tools, signs, and modes of interaction (Valsiner, 1998, 2007). Hence, the individual adds a personal element to culture by internalizing the cultural messages and transforming them into personally novel forms, which then are externalized to the surroundings through the individual’s actions.

Culture is seen not as a variable or a cause of human conduct but rather as a set of

semiotic and material resources or signs that human beings employ as mediators when living their lives together. Because of the emphasis on signs, this approach is called the semiotic approach. The semiotic and material resources can function to both constrain and enable specific ways of thinking and acting (de Mattos & Chaves, 2013; Valsiner, 2007; Zittoun et al., 2003). This process is characterized by a dialogical interaction between the individual and the resources in the environment where other people's opinions and beliefs and local and societal discourses enter into the mind, and through inner and outer dialogue, other people's interpretations can become a dominant I-position and shape an individual's interpretations of the world (Markova, 2006; Linell, 2009).

Below I address the central elements of the theory highlighted above in relation to the problematic features of traditional stress theories and the theoretical foundation for this study's conceptualization of stress.

3.3.1. INTERNALIZATION AND EXTERNALIZATION

Since individuals contribute a personal element to culture, they co-construct culture, and this process is explained through the concepts of internalization and externalization. Valsiner has explained internalization as the reconstruction of the 'incoming messages', which become modified and are thereafter externalized into the social world, where they become cultural signs or social suggestions (Valsiner, 2007). With these concepts, he emphasized that culture does not just determine our behavior but that individuals actively either ignore or embrace the variety of social suggestions they navigate in and thus let them enter into the internalization and externalization process or bar the entrance. Individuals orient themselves to aspects of the environment that are drawn both from their own former experiences as well as from the social suggestions in the environment.

This process of transformation of social suggestions entails two important theoretical implications. The first is the notion of causality, which in the cultural-psychological understanding opposes traditional linear causal thinking. What is central in this theoretical framework is to not attribute causal powers to culture or social interaction. The process of co-construction through the internalization-externalization process means that the social environment provides signs that the individual uses to interpret events, and social suggestions of how to perceive and act. Concurrently, through the actions of the individual, a reality is also constructed, which affects the process of constructing interpretations of events by changing the environments that he or she acts within. This cyclical process of shaping the environment one is shaped by differs from linear causal thinking.

The second implication is the notion of the relationship between the individual and

the environment. As previously discussed, traditional theories of stress separate the individual and the context, but the notion of the co-construction process emphasizes how the individual is deeply embedded in the environment. Valsiner (2007) explained this perspective through the concept of *inclusive separation*. He emphasized a basic difference between a person and the social context; they are inclusively separated, which means that the person is distinct from the social context while being a part of it. This distinction allows a subject-object distinction to be made and allows reflections upon their relationship while at the same time emphasizing that the person is embedded in the environment. This notion of embeddedness is further elaborated in chapter 7.

3.3.2. MATERIAL AND SEMIOTIC SIGNS

It is not just this theoretical conceptualization of the subject-object distinction and notion of causality that opposes traditional stress theories but also the notion of the context we are embedded in that is different. Valsiner stressed that the environment consists of both *semiotic* (language, communication, discourses, social representations) and *material* (artifacts, tools, physical surroundings) signs or tools that mediate our perception and action, a distinction employed in the work of Vygotsky (Valsiner, 2005). Within this line of thought, individuals are embedded in specific social and physical contexts, which afford certain ways of perceiving and acting within the environment and thus offer or invite individuals to engage in certain practices and limit the use of others. People are situated within a cultural field with symbolic means for both making sense of what happens and managing their interactions with others.

The focus on the material part of the environment and the means by which it enables or scaffolds specific ways of thinking and acting leads to the discussion of the agency of materiality and the distributed or even extended nature of our embeddedness in the material world. González-Ruibal (2013) has traced this discussion to many research areas such as within contemporary philosophy (Clark & Chalmers, 1999; Gallagher, 2013; Robbins & Aydede, 2009), cognitive science (Hutchins, 1995; Kirsch, 1995), archaeology (Gosden, 2005; Hodder, 1986; Olsen, 2006), and technology studies (Latour, 1993). Traditionally, cultural psychology has focused on the immaterial side of culture, but this disembodied image of culture has been challenged during the last decade, and an interest has emerged in how our lives and thoughts are entangled in a material world (González-Ruibal, 2013; Valsiner, 2007), which is reflected in the work of cultural psychology. In chapter 7 this discussion is transferred to stress research.

The semiotic resources can take the form of social representation, understood as a meaning complex that guides particular thoughts, feelings, and acting processes (Valsiner, 2003). Valsiner stressed the constructive element of culture by describing social representation as a process of selective construction of a meaningful view of the world followed by its continuous verification (Valsiner, 2003). Social representations,

through social negotiations and externalizing processes, are constantly being innovated and guiding people in their thoughts and actions. Hence, the social representations make constructed meanings of the past available for new elaborations and constructions. Their function is primarily to construct a stable, predictable world out of diversity and regulate human conduct as personal guides (Valsiner & Van der Veer, 2000). The way people understand the world is always, or could be, linked with a socially widespread “*knowledge template*” (social representations) that guides meaning construction by persons in their individual worlds. In this process, people *anchor* their understanding of something in social representations, and the anchoring leads them to *objectify* these representations (Valsiner, 2003).

Valsiner furthermore emphasized that social representations comprise a dynamic system that contains a dominant meaning and its opposite counterpart. Thus, the formation and constant verification of social representations involve dialogical processes where different suggestions are in opposition with one another (Valsiner, 2003).

3.3.3. DIALOGICAL INTERACTION

The dialogical element is a central aspect within cultural psychology and builds on the work of Mikhail Bakhtin, further developed by Hubert Hermans (1995, 1996, 2001), Wertsch (1991, 1997), Markova (2006), and Linell (2009). One of the basic assumptions in the dialogical perspective is that a person organizes inner dialogues guided by the social world (Markova, 2006; Valsiner, 1998). Hermans employs the concept of the dialogical self, which he describes as

“a dynamic multiplicity of I-positions in the landscape of the mind, intertwined as this mind is with the minds of other people”
(Hermans, 2001, p. 243).

The I-positions are different perspectival positions that the ego can occupy. This view emphasizes that the dialogical self is shaped by individuals’ different social experiences and trajectories through different contexts. These experiences, other people’s perspectives and opinions, and societal discourses enter into the mind as a perspective on how to think and act through the processes of intersubjective interchange (Hermans, 2001). And through these interchanges, a variety of I-positions are created that form part of one’s thinking and discourse, and people shift and contrast between the different I-positions that they adopt.

The relationships between the several positions are characterized by dominance or social power, which is partly derived from the personal culture and partly from the specific kind of social suggestions being mediated (Valsiner, 2007), and thus some

voices are more easily heard than others (Hermans, 2001). The different voices are not simply internalized but reconstructed as part of the self in personal ways. So other people's opinions and beliefs and local and societal discourses enter into the mind, and through inner and outer dialogue, other people's interpretations can become a dominant I-position and shape an individual's interpretations of the world.

Linell (2009) argued that we enter into dialogical relations not just through language but also with artifacts. Artifacts are not just physical objects but are inscribed with meaning and opportunities for use, which are realized when we interact with them. This interaction becomes dialogical when we inscribe meaning to the artifacts while, at the same time, the artifacts externalize this meaning and knowledge.

The dialogical notion of human meaning making emphasizes the tension and conflicts inherent in trying to understand the world and acting in it and how the tensions and conflicts occur not only between people and in their social negotiations but also within a person through his or her multiple internal voices. It opposes more traditional stress research, which relies on the transfer model of communication, instead addressing social negotiations of the different societal discourses and explaining how other people's and society's beliefs enter into our way of thinking and acting.

3.3.4. ENABLING AND CONSTRAINING DEVICES

According to this approach, our society is filled with multiple semiotic and material devices that enable or constrain our thinking and acting. These devices are also termed "*semiotic and material promoters and inhibitors*" (Valsiner, 2007) and entail specific social and material suggestions on how to perceive and act and how not to. Inherent in the cultural-psychological approach is the emphasis on applying a developmental approach when addressing human meaning making (de Mattos & Chaves, 2013; Valsiner, 2003; Valsiner & Van der Veer, 2000; Zittoun, 2003). The developmental perspective stresses that meaning making is a process and thus a concurrent transformation of cultural messages and dialogical negotiation of meaning. To make sense of the world, we always preadapt for future possible happenings. Therefore, the barriers to and resources for appraising and coping with our working conditions can contribute to what Zittoun (2003) labels "*ruptures*," which refers to discontinuity in a person's life trajectory. A rupture can point in new directions, but if the barrier is difficult to overcome, it can inhibit or block further progress (de Mattos & Chaves, 2013).

In chapter 8 I use a *landscape metaphor* (Nielsen & Kvale, 2003; Noyes, 2004) to elaborate on the semiotic and material promoters and inhibitors in which individuals navigate and to describe the combination of a variety of material and social suggestions for how to appraise and cope with the working environment. And in chapter 9 I

address the barriers to coping that can create ruptures for people's work trajectories and describe how a rupture is addressed differently in two groups.

One of the main aspects of cultural psychology is its emphasis on the semiotic and material embeddedness of the individual and its emphasis on the individual's meaning-making process as taking place in the interaction with social others and material artifacts and thus in the interface between individuals and cultures. Linell has described this using the concept of the interworld:

“‘Mental’ activities do not happen in an ‘inner world’: rather, they should be seen as taking place in an ‘interworld’”

(Linell, 2009, p. 146).

According to Linell, the dialogical perspective entails that the mind be extended over to others and to the social groups to which one belongs.

Based on these basic assumptions in the theory, it is further argued that given the social use of the semiotic and material resources, the mind is distributed across these semiotic and material resources in the environment.

3.4. DISTRIBUTED COGNITION

The traditional understanding of cognition, which reflects its Cartesian heritage, views cognitive processes and development through the lens of cognition as being possessed and residing in the heads of the individuals. Within this perspective, social, cultural, and technological factors have been relegated to the role of external sources of stimulation. Salamon (1993) has argued that this perspective is fine when human behavior is not examined in real-life problem-solving situations. When people encounter social and technological surroundings, it becomes clear that they

“appear to think in conjunction or partnership with others and with the help of culturally provided tools and implements”

(p. xiii).

In this way, the social and artifactual surroundings can be argued to be vehicles of thought instead of just sources of stimulation (Salamon, 1993). It is this understanding of cognition that has been termed distributed cognition (Goodwin & Duvanti, 1992; Hutchins, 1995; Salamon, 1993; Scribner, 1984).

The term *“distributed cognition”* is a recent development within cognitive psychology, and this line of thought has antecedents in the work of Vygotsky, Bateson, and Gibson (Hutchins, 2010). I focus only on Gibson as his concept of affordances is a preliminary

step within the cognitive tradition to emphasize the agency of the material culture and the ecological surroundings, which is a central theme in chapters 7 and 8.

J. J. Gibson is an exponent of ecological psychology, which represents an interactionist view on perception (Gibson, 1986). Gibson represented another line of thought within cognitive psychology that, at that point, was primarily focused on information processing within the individual, but he focused on the question of what information was available in the environment. This line of thought is reflected in his concept of affordances, which created a foundation for the development of distributed cognition. Affordance refers to that how we perceive an object rely besides the properties of the observer, also on the actual and especially the functional properties of an object which determine how we could use it:

"An affordance cuts across the dichotomy of the subjective-objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behavior. It is both physical and psychical, yet neither. An affordance points both ways, to the environment and to the observer"

(Gibson, 1986, p. 129).

There has been a larger debate on what affordances actual refer to – the property of the environment, or the individual, or the relation between them. According to Greeno (1994), affordance refers to the property of the things/others the individual interacts with. He speaks of affordance and ability, where affordance refers to *"whatever it is about the environment that contributes to the kind of interaction that occurs"* (p. 3) and ability to *"whatever it is about the agent that contributes to the kind of interaction that occurs"* (p. 3). What Gibson aims to conceptualize is that the world, by its physical properties, invites individuals to engage in certain actions with it.

This ecological approach is reflected in the theory of distributed cognition. The distributed cognition approach was developed by Ed Hutchins (Hutchins, 1995) in the mid- to late 1980s as a radically new paradigm for rethinking all domains of cognitive phenomena. The term "distributed cognition" refers to how cognition is *"stretched over"* (Lave, 1988) across persons and artifacts, and the social and cultural aspects of human cognition are thus emphasized. It seeks to explain how cognitive activities are embodied and situated within concrete environment in which they occur.

In distributed cognition, the traditional problems posed by the dichotomy between cognition and culture are overcome. Hutchins (1995) argues that *"human cognition is not just influenced by culture and society, but that it is in a very fundamental sense a cultural and social process"* (p. xiv). The elaboration of the concept of distributed cognition is based on Hutchins's large study of the work processes (Hutchins, 1995) within a navigation team on a large navy ship. In his study he moves the boundaries of the cognitive unit of analysis from the individual processes and treats the navigation team as a cognitive and computational system. He presents the navigation work as

a system of interactions among media both inside and outside the individual and frames both the cognition and culture as parts of a larger dynamic system. One of his main arguments is that the navigation team was only capable of navigating the ship due to the emergent cognitive capacity of the team as a whole rather than its individual members (Hutchins, 1995). He points to three aspects of the distributed nature of cognition that all seemed to be involved in the navigation of the ship: materially distributed cognition, socially distributed cognition, and temporally/culturally distributed cognition (Hutchins, 1995; Salomon, 1993). Material and socially distributed cognition refer to how individuals' cognition is scaffolded by physical elements and social interactions in the environment, respectively. Temporally distributed cognition refers to how activities are characterized with respect to their adaptation over time in response to new demands in the environment.

3.5. THE INTEGRATION OF THE TWO THEORIES

The two trajectories of research described – cultural psychology and the theory of distributed cognition – are combined in this study. Despite having emerged from different disciplines of psychology, the two theoretical frameworks are developed from the same overall theoretical and philosophical perspective, and their theoretical outlook is similar in some respects.

The distributed cognition approach focuses on how cognition is stretched across internal and external representations and has its equivalent in the cultural-psychological distinction between the personal and collective culture that form part of the human psyche. Both theories focus on the influence of the material and social world the individual is embedded in, and both theories place mental activities in the interface between the individual and the environment. It is also central to both theories to focus on the ecological surroundings in understanding human meaning making and the different ways this interaction enables and scaffolds specific ways of acting. A further description of how I unite these two theoretical frameworks both theoretically and in relation to the understanding of stress is provided in chapter 7.

Within this study I am primarily interested in how individuals use different cultural artifacts in order to understand stress, interpret events, and act in relation to it, and especially which environmental resources and constraints exist for individuals' interpretations and actions. From this perspective a person is seen as an agent continuously engaged in an active process of relating a personal meaning to the locations, social interactions, and societal discourses in which he or she is embedded

3.6. A CULTURAL PSYCHOLOGICAL UNDERSTANDING OF STRESS

The application of these theoretical perspectives in this study is described in chapter 7, where the concept of distributed cognition is used to develop the concepts of distributed appraisal and coping, informed by cultural psychology as the general theoretical framework. In the following section, I elaborate upon this thesis's understanding of stress derived from my theoretical framework. And I especially emphasize three aspects, which form part of the initial assumptions behind the understanding of stress in this thesis:

1. People are located in the world, with other people, with specific material arrangements, with distinct objects, in specific situations, within societies with specific discourses, within social institutions with specific local discourses, etc. In order to understand how people make sense of the world and act within it, one has to take this embeddedness in specific contexts into consideration. From this point of view, stress is a situated phenomenon.
2. People make sense of the world in interaction with others or with the environment. They interpret events, situations, other people's actions, etc. through complex systems of interaction with the surroundings. The specific interpretations of events emerge, are constructed between people in the actual interaction with others, and are enabled and scaffolded by features of the communication or the physical environment. From this point of view, stress is a distributed phenomenon.
3. People are social beings trying to make sense of the world through communication with others and themselves. Discourses, other people's opinions, and social representations become part of their inner speech and take different positions in their thinking processes, and thus their thinking is socially guided. From this point of view, stress is a dialogical phenomenon.

These three underlying assumptions form part of the understanding of stress in this thesis and are elaborated further in chapter 7.

CHAPTER 4: METHODOLOGICAL CONSIDERATIONS

The pragmatic and hermeneutic epistemological approach and the cultural-psychological framework outlined in the theory section are continued in my methodological approach. The pragmatic perspective is reflected in the ethnographical approach, which is characterized by an interest in people's perceptions, interpretations, and actions within a specific social and cultural practice. Ethnography focuses on people's actions and perceptions of their own life, on the way people shape and reproduce themselves in the community, and on how their actions expose the social field for new interpretations and change (Hastrup, 2010). The premise in choosing ethnography as the primary method is that language, though important as a means to describe culture, does not embrace the cultural knowledge that is behind words and is reflected in actions or nonactions. This study thereby reflects a pragmatic epistemology where it is the direct experience with other social and linguistic communities and thus a learning practice of other people's practices that is in focus.

The hermeneutic/phenomenological approach is reflected in the interview study, where I ask people about their practices and where I am interested in their detailed and nuanced descriptions and interpretations of their work life and ways of coping with it. Jacobsen et al. (2013) have described a continuum of phenomenological research, with the American psychologist Giorgi (the main proponent of phenomenology) and his focus on pure descriptions of essences on one end of the continuum. In more-hermeneutic approaches, interpretations are inevitable and the context of interpretation, such as the body, history, or physical surroundings, must be included; this type of approach is in the middle of the continuum. At the other end, Jacobsen et al., (2013) argued, are the poststructuralist and deconstructive perspectives. The approach in this study is placed on the continuum between the hermeneutic and poststructuralist perspectives as I am interested in the context of the participants' interpretations as well as their interpretations of the conceptual structures, such as stress and busyness, by which they understand the world.

4.1. STUDY DESIGN

My study aim necessitates a study design that allows me to explore and analyze the socially and culturally contextualized modes of understanding and acting within an organizational context.

The study is a mixed methods study consisting of an ethnographic study in two departments at a multinational biotech company with 5 months of fieldwork, individual and group interviews, and a survey, combined with a social network analysis, conducted three times. In Table 2 the research process is pictured.

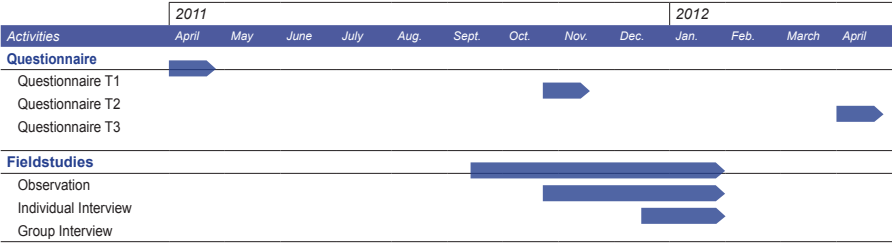


Table 2 Research design

4.2. PARTICIPANTS

The company was a multinational biotech company with 6,000 employees working in research, production, and sales around the world, 2,500 of them in Denmark.

The two participating departments comprise a research unit and a production unit. Below, the demographic information of the two departments is described in Table 3.

	Research unit	Production unit
Employees	Researchers: 22 Lab technicians: 16 Technicians: 8 Secretary: 1 Manager: 3 In total: 50	Lab technicians: 18 Technicians: 6 Managers: 3 In total: 27
Age	Mean: 42.5 years Range: 23–63	Mean: 46.7 year Range: 35–60
Gender	Male: 52% Female: 48%	Male: 40.7% Female: 59.3%
Seniority	Mean: 13.44 years Range: <1–42	Mean: 14.07 years Range: 1–39

Table 3 Demographic data on the two participating departments

4.3. THE QUANTITATIVE METHOD

4.3.1. RESEARCH PROCEDURE

For the quantitative part of the study, I used an electronic questionnaire, which was emailed three times during the 12 months – at baseline (T1), after 6 months (T2), and after 12 months (T3) – to all the persons employed in the two departments according to the personnel listings of the HR department. The response rate in the two departments is shown in Table 4.

	T1	T2	T3
Research unit			
Response rate	74%	98%	98%
Production unit			
Response rate	92.6%	88.9%	85.2%

Table 4 Response rate for the two participating departments

All three times, an email reminder was sent out after about a week.

The survey was a large-scale questionnaire composed of two parts. The first part consisted of seven relational questions comprising a social network analysis and using a roster method (Marsden, 1990) for selection, where all the names of the employees in the departments were listed. The relational questions were focused on the frequency and importance of both work-related and non-work-related interactions with colleagues, wish for more interaction with others, and perceived influence and trust in others. For the purpose of this study, only non-work-related ties that the employees reported as most important were used. NetDraw (Borgatti, 2002) sociograms were used to visualize the group differences in coping.

The second part of the questionnaire consisted of 120 items measuring work environment factors (Kristensen et al., 2005), stress symptoms (Kristensen et al., 2005), perceived stress (Cohen et al., 1983), coping strategies (Carver, 1997), and emotional contagion (Mehrabian & Epstein, 1972).

COPSOQ

The Copenhagen Psychosocial Questionnaire (COPSOQ) is a well-validated standardized questionnaire developed at The National Research Centre for the Working Environment (NRCWE) in Denmark (Kristensen et al., 2005). It includes 30 scales based on 141 items, but because of the length of the questionnaire, specific scales were selected for this study. The result was 24 scales (including stress scales) based on 90 items: type of production and tasks (quantitative, emotional, and sensory

demands), work organization and job content (influence at work, possibilities for development, degree of freedom at work, meaning of work, commitment to the workplace), interpersonal relations and leadership (predictability, role clarity, role conflicts, quality of leadership, social support, feedback at work, social relations, sense of community), and work-individual interface (job satisfaction, work-family conflict). For most of the questions, intensity (from “to a very large extent” to “to a very small extent”) or frequency (from “always” to “never/hardly never”) is reported on a 5-point Likert scale (range: items 0–4, total 0–40).

Stress symptoms

The stress scale is also from COPSQ (Kristensen et al. 2005) and measures general health, mental health, vitality, behavioral stress, somatic stress, and cognitive stress. The respondents were asked to rate on a 5-point Likert scale ranging from “never” to “very often” how they had been the last 4 weeks.

Perceived stress

The Perceived Stress Scale (PSS-10) is a self-reported measure of global stress and measures the extent to which people find their life unpredictable, uncontrollable, and overwhelming. It consists of ten questions rated on a 5-point Likert scale ranging from “never” to “very often”.

Coping

Coping was assessed using the Brief COPE Questionnaire (Carver, 1997; Carver et al., 1989), which measures the use of different coping strategies. It is a 28-item questionnaire that measures 14 dimensions of coping. Each item is rated on a 4-point Likert scale ranging from “never” to “very often” (range: items 1–4, dimension 2–8). Nine of the 14 dimensions were chosen for this study: active coping, self-distraction, self-blame, behavioral disengagement, instrumental support, venting, positive reinterpretation, humor, and acceptance. Self-blame refers to criticizing oneself for what has happened. Positive reframing refers to trying to see something good in what has happened. Acceptance includes learning to live with it. Humor refers to making fun of the situation. Instrumental support refers to getting help and advice from other people. Self-distraction includes turning to other activities in order to think about it less. Active coping includes taking direct action to deal with the problem. Venting refers to expressing negative feelings. Behavioral disengagement refers to giving up trying to deal with it.

Susceptibilities to emotional contagion

The Questionnaire Measure of Emotional Empathy (QMEE) (Mehrabian & Epstein, 1972) was designed to assess emotional empathy and thereby the emotional response to the perceived emotional experience of others (Mehrabian & Epstein, 1972). It is a 33-item scale and contains seven subscales, one being “*the susceptibility to emotional contagion*” subscale, which is used in this study. This subscale consists of seven questions rated on a 5-point Likert scale ranging from “never” to “very often” (range: items 0–4, total 0–40).

Within this study only the results from the perceived stress scale and the coping scale are reported. The results from the questionnaire aimed at measuring work environmental factors were only used to outline the psychosocial working environment within the two departments which was reported to the departments. As I was interested in group differences, the sample size was too small to conduct statistical analyses with multiple parameters. Furthermore the time consuming character of my study forced me to focus only on perceived stress and coping and they were also the parameters most in line with my research focus.

4.3.2. ANALYSIS OF QUANTITATIVE DATA

Statistical analyses were performed using the SPSS package (IBM, 2012). Formal group differences were compared using Students’ t test at two time points, T2 and T3. Due to the low response rate at T1 (particularly among the researchers), this data collection point is disregarded in the following analysis. Multivariate analyses were not conducted because of the relatively low number of participants within the groups

In order to measure informal group differences, a social network analysis was performed, and the derived subgroups were then compared using Students’ t tests to determine whether there were differences in coping between the two networks. NetDraw (Borgatti, 2002; Borgatti et al., 2013) was used to visualize the group differences in coping. To enable comparisons between the different measures, effect sizes were calculated using Cohen’s d (Cohen, 1988). Effect size is a simple way of emphasizing the size of the difference between two groups rather than confounding this with sample size. Cohen (1969) has argued that an effect size of 0.2 is small, 0.5 medium, and 0.8 large, which were my guidelines in my analysis of the results. Estimates were reported with their 95% confidence intervals (CI).

4.3. THE QUALITATIVE METHOD

During the fieldwork I spent approximately 2 days a week in the research unit beginning in September 2011 and 1 day a week in the production unit beginning in October 2011. In October I initiated the individual interviews, and the group interviews were conducted from December 2011 to January 2012. This sequencing and triangulation is depicted in the following figure.

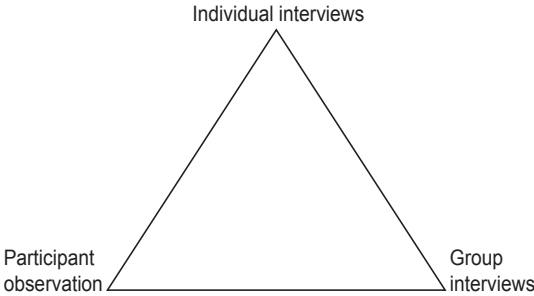


Figure 1 Method triangulation design for the present study

The approach allowed me to explore the distributed nature of stress from different angles, which also served an ongoing validation process (Denzin & Lincoln, 2008). I initiated my approach by using observations in order to get an understanding of the field before conducting interviews. I also wanted to get an insight into the group communication and dynamics as well as the different group constellations before conducting the group interviews. The individual and group interviews were then based partly on my “wonderings” from the field and partly on my theoretical framework. In the table below, the number of individual and group interviews and observations are shown.

	Research unit	Production unit
Individual interviews	Researchers: 5 Lab technicians: 3 Technicians: 1 Secretary: 1 In total: 10	Lab technicians: 2
Group interviews	Researchers: 3 Lab technicians: 2 Technicians: 1 In total: 6	Lab technicians: 1 1 mixed group of lab technicians and technicians
In total	16 interviews	4 interviews
Observations	45 days	18 days

Table 5 Datacollection overview

The individual interviews lasted about 1 hour and took place at the work site. They were all digitally recorded and subsequently transcribed verbatim. The group interviews lasted about 1.5 hours and were digitally recorded and subsequently transcribed verbatim.

In the following table, the characteristics of the group interview are shown.

	Department	Function	Division A	Division B	Newly employed	N
Group interview 1	Research unit	Researchers	1			5
Group interview 2	Research unit	Researchers	1		1	5
Group interview 3	Research unit	Researchers		1		12
Group interview 4	Research unit	Lab technicians	1			4
Group interview 5	Research unit	Lab technicians		1		4
Group interview 6	Research unit	Technicians				4
Group interview 7	Production unit	Lab technicians				5
Group interview 8	Production unit	Lab technicians and technicians				5

Table 6 Group interview composition

In chapter 6 and in the articles, the qualitative study is described in greater detail together with the analysis of the data.

CHAPTER 5: MIXED METHODS

In this section I address this study's application of mixed methods from different angles and describe the epistemological, practical, and cultural problems in integrating the different methodologies. As earlier described, the primary method of this study is the qualitative method because it is most suitable for answering the research questions. Through an ethnographic approach, I explore the distributed nature of stress whereas the quantitative approach is used to explore developments in informal and formal group differentiation in appraisal and coping over time.

5.1. A MIXED METHODS APPROACH IN THIS STUDY

Bryman (2007) has listed specific typologies of mixed methods research that can provide an overview of which mixed methods design researchers have chosen. I briefly relate my study to these typologies, and subsequently I move on to describing the personal process of integrating these two methodologies. The typologies relate to the sequencing of data collection, the priority given to each method, the function of the integration, and the stages in the research process where the multistrategies occur (Bryman, 2007).

The data are collected primarily simultaneously but with a sequencing element in the sense that the questionnaire was conducted before, during, and after the qualitative data collection. Priority is given to the qualitative part of the study because my main aim is to explore the distributed nature of stress, which in its theoretical underpinnings and epistemology implies an interest in the contextual embeddedness of the individual. This requires a methodology that can capture an in-depth understanding of the context in its complexity in order to understand human meaning making and action. The quantitative method integrated with this method has different functions: (1) It functions as a parallel process informing the qualitative approach by illustrating where to find specific group differences in appraisal and coping practices the qualitative data can explain. (2) It illustrates developments in coping over time within different groups, which are then explained by the qualitative data. (3) It is an aid in sampling specific participants for interviews.

The multistrategy occurred in different stages of the research process: research question formulation, data collection, data analysis, and data interpretation.

The aim of this study is to explore the distributed and situated nature of stress and coping, and applying this perspective to human activities also requires a further look

into my own situatedness within different contexts as a researcher. I progressively became aware of how my attempt to integrate a quantitative and qualitative logic in the study had developed into a divided parallel process where different epistemological perspectives battled and I attempted to legitimize or criticize each perspective separately instead of trying to reconcile them. One of the reasons for this divided nature of my research process seemed to be the inherent epistemological differences between the two methodological stances as well as the cultures proceeding from the two approaches.

5.2. EPISTEMOLOGICAL BATTLES

The problems described reflect the methodological chasm between qualitative and quantitative research paradigms. Often a research study is conducted within a single paradigm, and my research process reflected clearly how the different methodological stances, when embedded culturally, seemed far apart in their ontologies – their views about the nature of reality – and their epistemologies – their views about knowledge and our relationships to it.

Onwuegbuzie and Leech (2005) refer to Rossman and Wilson's (1985) identification of three major schools of thought that have evolved from the quantitative-qualitative paradigm, namely *purists*, *situationalists*, and *pragmatists*. The difference between these three perspectives relates to the extent to which each believes that quantitative and qualitative approaches can coexist and can be combined.

The purists posit that quantitative and qualitative methods stem from different ontological and epistemological assumptions about the nature of research, and they advocate for mono-method studies as they do not think quantitative and qualitative studies can and should be mixed (examples of such an approach is Silverman, 1993).

Situationalists maintain that mono-methods are preferred, but as they believe both methods have value, they argue that it depends on the research questions because some are better suited for qualitative methods and others for quantitative methods.

Pragmatists argue that a false dichotomy exists between quantitative and qualitative approaches; the epistemological distinctions are not related to the methods in the sense that methods are just heuristic tools that are designed to aid our understanding of the world. They contend that quantitative methods are not necessarily positivist, nor are qualitative techniques necessarily hermeneutic. They emphasize that it is the research question that is important and has to drive the methods used, believing that epistemological purity does not get research done.

Within the mixed methods literature, the main attempt to legitimate mixed methods

research is characterized by applying a pragmatist outlook to the problem (Bryman, 2007). Howe (1992) represents a pragmatic perspective on the integration of the two methods. He states that the debate has evolved from one about the incompatibility of quantitative and qualitative techniques and procedures, which he terms a *literal contrast*, to one about the incompatibility of the more fundamental epistemological assumptions of the quantitative and qualitative paradigms, which he terms a *derivative contrast* (Howe, 1992). With this distinction, he separates the methodology debate from the epistemology debate. He argues that the derivative contrast is fictive in the sense that the positivistic stance cannot be realized because the natural sciences are just as theory laden, interpretative, and hermeneutic. Furthermore, he argues that the humanistic (which he terms interpretivist) stance has been developed as a negation toward positivism, which has contributed to the two methodologies being characterized as embedded in dualisms such as objectivity vs. subjectivity, fixed vs. emergent categories, the outsider's vs. the insider's perspective, a static vs. a fluid reality, and explanation vs. understanding (Howe, 1992). According to Howe (1992), we need to separate concepts from their positivistic connotations in order to unite the different methodologies.

The pragmatist stance was not a position I had in the beginning of my research process. During my research process, I moved from a situationalist stance to a purist stance, and after a period of data analysis trying to reconcile the two methodologies, I ended up with a pragmatist stance, which is a process I address below. I thereby follow Howes's argument and adopt pragmatism as the philosophical stance advocating the integration of quantitative and qualitative methods and consider the methods as tools for addressing complex human behavior. But the choice of philosophical stance and conceptual arguments of the integration of the two methods does not eliminate the actual difficulties inherent in the research process; there are two still different ways of assessing, understanding, and writing about a phenomenon embedded in specific cultures, which are addressed below through examples from my own research.

5.3. THE CULTURAL MANIFESTATION OF THE DERIVATIVE CONTRAST

The problem of uniting the different methodologies was not so much the practical application and unification of the methods, and thus the literal contrast was not an issue. Entering into two different cultures, semiotics, and discourses surrounding the methodologies was, by contrast, a larger problem that seemed to stem from cultural and semiotic manifestation of the epistemological differences and dualisms that connoted the different research paradigms. I thus argue that what also matters is the cultural manifestation of the derivative contrast within the two methodological contexts.

5.3.1. TWO CULTURAL CONTEXTS AND THE POLARIZATION OF METHODOLOGIES

I was situated in the Department of Occupational Medicine, Regional Hospital West Jutland - University Research Clinic, in the Department of Communication and Psychology at Aalborg University and, for a period of 9 months, at the Centre of person, practice, development and culture at the Department of Psychology, Copenhagen University; these three contexts had different epistemological and ontological understandings of human action and worked within different research paradigms. The prevailing research procedure within the Department of Occupational Medicine was quantitative, and within stress research, the themes were to examine the specific work characteristics that could lead to stress and to develop evidence-based treatment for people with stress. My supervisor at Aalborg University was a qualitative researcher, as were the researchers I was situated with at the Department of Psychology in Copenhagen. During my research process, I engaged in many different settings, such as conferences, PhD courses, visits at other research institutions, etc., with different methodological persuasions. The cultural logic within these different contexts encompassed different cultural messages on what knowledge is, how the human being interacts with the environment, and how a research process should develop, as well as different articulation and communication about the subject field, and thereby offered two parallel ways of looking at my subject field, two different languages about it. I learned to be two kinds of researchers, with very few tools to unite the two.

The parallel ways of addressing the subject field and the continuous switching between two modes of thinking hampered the generation of knowledge because they also meant alternately legitimizing one of the methods and looking at the other method's weaknesses instead of addressing the knowledge they could generate together. In this period my mode of thinking was characterized as purist as I was strictly aware of the methods' epistemological differences and was occupied with the impossibility of uniting them.

One of the reasons was that I had two different mind-sets about research. When I explained my study to quantitative researchers at conferences or courses, questions with a quantitative logic like, "Could you be more specific in your articulation of the aim? Which factors do you presuppose affect the appraisal and coping process? What are your variables? Haven't you read some literature that can guide you to a specific aim?" were common, but they opposed the qualitative explorative nature of my study as well as my ontological and epistemological persuasions.

When I explained my study to qualitative researchers, they made comments such as, "But why are you conducting a questionnaire? You have enough data material in the qualitative data. The questionnaire does not tell you about the contextual factors you aim to understand."

Howes's (1992) description of the inherent dualism in the different methodologies seemed to structure the mode of thinking and sustain the divided parallel way of thinking about the two methodologies. The dualism of objectivity vs. subjectivity and quantity vs. quality especially seemed to affect my research process; I often switched between preferring one or the other pole of each dualism. Suggestions from the quantitative-oriented researchers focused on reaching objectivity through either quantity or biological markers, and this way of thinking affected me throughout the research process, especially in the preparation phase of the study. In this phase I was occupied with quantity, and my logic was that quantity equaled objectivity. Two companies participated in my study, and in one of the companies, two departments participated. Even though my supervisor advised me to narrow the study down, I was preoccupied with quantity and its claim on objectivity. When I initiated the study at the two companies, I realized the complexity and heavy data load it would bring along, and only one of the companies was chosen.

But in other phases of the study, I was focused on the strengths of the qualitative approach. During the fieldwork, I was occupied with the richness of the qualitative data and was blind to what the quantitative method could contribute.

I also experienced how the two modes of thinking battled at the same time. In the process of conducting my fieldwork, a proponent of quantitative methodology encouraged me to control for a variety of relevant factors in order to be able to isolate my research object and thereby conclude that the group differences were due to social processes. At the same time, my supervisor encouraged me to explore the dynamic relationship of the variety of factors inherent in the field. These opposite ways of addressing a context both entered into my mind-set and conquered my attention in the fieldwork. Was the context a set of separate factors I had to exclude one by one in order to reach a linear understanding of my phenomenon? Or was the context a set of interrelated, embedded factors that contributed to a cohesive narrative of my phenomenon?

5.3.2. THE INTEGRATION OF THE METHODS

Karpatschhof (2007) has described how the quantitative method often is criticized for the shallowness of its analysis whereas the qualitative method often is criticized for its poor reliability and the difficulty of analyzing observations. He narrows the difference down to this: the quantitative method tends to represent a postulated objectivity whereas the risk of the qualitative method is a subjectivity lacking self-reflection. It was these shortcomings I tended to focus on in the research process, and it limited my perspective on uniting the two methods. My divided perspective on the methods contributed to a parallel data collection process whereas I could have focused more fully and systematically on the unification of the data and how they informed

each other. I did focus on how the data informed each other, but it was more from a consultant perspective, further described in chapter 6, which concerns my role in the field. I primarily focused on using the qualitative method to understand the quantitative results on the outline of the psychological working environment, which I reported to the departments after each measurement.

When I began combining the results from each method in the analysis process, I progressively came to perceive the methods as tools that could be combined in order to reach a more coherent picture of the distributed nature of stress and coping. The quantitative measures captured the development in coping over time, which the qualitative method could not describe with same specificity. Additionally, the quantitative method captured specific group differences I had not been aware of as I did not have a thorough insight into all the subgroups in the department. Furthermore, questions were asked in the questionnaire I had not been aware of in the qualitative interviews, which was enlightening for the study. The qualitative approach, by contrast, could explain in depth the results of the questionnaire and contextualize the results and nuance them in enriching ways. The quantitative results were bits and pieces that the qualitative approach united in a cohesive narrative about culture and coping practice

5.4. THE INTEGRATION OF METHODOLOGICAL APPROACHES

In this section I distinguish between the actual processes in trying to make the data inform each other and the results of the combination of the two methods. In order to describe these elements, I use Karpatschof's model of the dialectical processes inherent in using qualitative and quantitative methods (Karpatschof, 2007) and Bryman's more concrete descriptions of the actual combination of the different methods as a frame of reference (Bryman, 2007).

The reconciliation of the different methodologies can be described as different perspectives used when addressing a research topic. I use both what Karpatschof calls *seriality*, which refers to studying a person as a part of a series, and *contextuality*, which refers to perceiving a person as belonging to a group or context (Karpatschof, 2007).

In my study I use both the serial and contextual perspective and use what Karpatschof (2007) has defined as transitional processes of *serialization* and *abstraction* when turning from the qualitative to the quantitative perspectives and transitional processes of *deserialization* and *concretization* when going from the quantitative to the qualitative perspectives.

During the data collection process, I used the processes of deserialization when, in the qualitative interviews and fieldwork, I tried to understand the results from the

questionnaire in depth and thus searched for an understanding of what the results of the questionnaire actually meant for the participants.

The phase of analysis was characterized by the use of both processes of serialization and deserialization. I used deserialization processes when analyzing why there was a difference in the use of specific coping strategies over time in the quantitative results. I used the qualitative results in order to grasp contextual developments that could explain the difference in the use of coping strategies over time. I also used deserialization processes when I saw group differences in the use of coping strategies within the quantitative results and referred to the qualitative results in order to understand what had happened to the groups and how they reacted to external developments. Furthermore, I engaged in serialization processes when trying to understand group developments in their appraisal and coping processes over time. I referred to the quantitative results in order to see whether there was any development over time in the choice of coping strategies and in their stress level. These results I tried to explain by looking at the qualitative data, thereby using the deserialization processes again.

Looking at the different processes, I could see that I often used deserialization processes as I often went from quantitative to the qualitative perspectives; hence I used the qualitative results to enrich and explain the quantitative results. But I also used the quantitative data to enrich the qualitative data when I used the quantitative data to understand the development of coping over time and used the coping concepts from the questionnaire to nuance the coping practices in the qualitative part of the study. Furthermore, I used the quantitative data to enrich the qualitative data on group differences in coping and I used the quantitative data to select employees for interviews.

I often went back and forth between the quantitative and qualitative results in order to compare them. I compared the social networks in the social network analysis with the groups I had observed in the qualitative part of the study, and I looked at the sociograms of the groups with different coping variables and compared them to my observations and interviews.

The literature on mixed methods lists different approaches to the integration of the data. In my approach, I have applied several.

I have applied *complementarity*, which refers to seeking elaboration, enhancement, and clarification of the results from one method with the results from another method (Bryman, 2007). The qualitative method allowed explorations of how and why the group-related differences in coping indicated by the quantitative method, were expressed and had developed in concrete practices, and I found that work characteristics, physical surroundings, social relations, and subcultures had an impact on the coping process of the employees. The data about the relation between the different characteristics of the groups and the coping strategies reframed the results

from the quantitative part of the study without invalidating them.

Development uses the results from one method to develop or inform another method (Bryman, 2007). In this study the understanding of the group-related differences in coping was interpreted through the development of the new concept of distributed coping. The new concept was invoked because the concepts of appraisal and coping focus too much on personal features and were considered difficult to remove from a mainly or purely individualistic connotation. They were redefined as distributed appraisal and coping, which connoted that the appraisal and coping practice was embedded in the working environment. The concept of distributed coping was useful because it enabled analyses of mediations between appraisal and coping (quantitative data and qualitative data) and processes of learning and participation in concrete social practices (qualitative data).

Expansion broadens the breadth and range of inquiry by the use of different methods for different components of the research process (Bryman, 2007). The results of the questionnaire were used to select the participants for the qualitative interviews. Toward the end of the project, the results from the quantitative study enabled reflections on the possible extension of the conclusions from the case studies to other employees in similar situations. On the one hand, the two cases represent unique examples of employees in their everyday work practices. On the other hand, owing to the great similarity of organizations, professions, and the work and social practices within them, there is reason to suspect that the patterns described in the two cases are not exceptional.

During the early development of my theoretical understanding of the phenomenon and the choice of research design, items in the quantitative logic supplied concepts for describing cognitive functions and stress level, while cultural psychology offered a methodological and methodical approach for including and interpreting different levels of perspectives in the analysis.

CHAPTER 6: ETHNOGRAPHIC DESCRIPTIONS OF TWO CASES

In the following section, I introduce the qualitative part of the study through a field description of my fieldwork at the two departments. I describe the method as a journey through different contexts, conversations, participations, and interactions and describe the challenges I faced during my fieldwork that have affected the research process in different ways. Throughout the fieldwork I engaged in different social positions as a questioner, an observer, and a participant in working and social activities.

6.1. TOWARD AN AGREEMENT OF PARTICIPATION

In February 2009 I met with an HR manager from the participating company and presented my project to her in the hope that she would allow two departments to participate in my study. It took me a long time to find the building she was in as the company had a large building complex with separate small and large buildings interwoven together.

I chose this organization because it met my criterion of being a large organization, and thus it made my study less vulnerable: if one of the departments should have second thoughts about participating, it would be easy for me to get a new department to participate. Furthermore, because of the statistical analyses, the departments had to comprise at least 50 employees, which I was also more likely to find in a larger organization. Another criterion was that the organization comprised departments with different professional groups that worked together as well as other departments with only one professional group. This structure enabled me to look at different professional cultures in addition to social processes in stress. Through a personal contact, I managed to get a meeting with the HR manager.

During the meeting she was critical in a constructive way concerning the scientific value of the study and whether it actually could generate results that the company could use but that also could improve the knowledge on stress in general. At the end of the meeting, she agreed to the participation of the company and promised that she would find the participating departments. The criteria I discussed with her were that there should be one department that had stress issues and one where these issues were less prevailing. My strategy for the selection of departments was thus characterized by an *information-oriented selection*, and more specifically, I searched for cases with the *maximum of variation* (Flyvbjerg, 2006). Maximum of variation is characterized by

obtaining information about the significance of various circumstances for case process and outcome, but in this case, it was only on one parameter, the level of stress. Usually this kind of selection strategy implies three to four cases, but in this case, it comprised only two due to the time-consuming process of doing a multiple case study with both quantitative and qualitative methods. My thoughts on the issue were that because the distributed nature of stress was a relatively new approach to stress, looking at work environments where the employees had different levels of stress could provide a rich description of different aspects in the environment that could mediate specific ways of perceiving and acting in relation to the working conditions.

The HR manager succeeded in fulfilling my criteria except for the size of the department, as one of the departments comprised 33 employees. In January 2011 I met with the HR manager and the managers of the participating departments and presented the study. A final agreement on participation was made thereafter. In February 2011 one of the departments did not want to participate because it was facing a large round of layoffs. The HR manager succeeded in finding two more departments, and in March 2011 I presented my project to the managers of the now three departments.

Just prior to conducting the first questionnaire, in April 2011, I presented my project to two of the departments together, and the third department received a written description of the aim and study, which the management group presented for the employees.

The first questionnaire was emailed to the participants in April 2011.

After conducting the first questionnaire, I presented the results to the managers of the three departments. After this presentation one of the departments replied that they did not want to participate as they thought the study was too time consuming for their employees.

The remaining two departments and I agreed upon a date when I could present the results of the questionnaire to the participants.

6.2. THE PARTICIPATING DEPARTMENTS

The research unit was divided in two divisions, which, though organized equally, performed their research with different materials and were physically separated. One division was on the ground floor and the other on the first floor. One division consisted of only researchers and lab technicians whereas the other employed technicians as well.

These divisions had a divided and hierarchical organization of work. The researchers developed study plans, which were given to the lab technicians and technicians to

perform. The researchers functioned as project managers and as employers because they organized the amount and pace of the work assignments for the lab technicians. The researchers were primarily located in private offices whereas the lab technicians and technicians primarily were located in multiperson offices.

The production unit was divided into six groups that conducted different tasks and were physically separated in different laboratories. Two of the groups were technicians, three of groups were lab technicians, and the last group comprised both technicians and lab technicians. This group was located 13 miles from the main office and only once a month attended department meetings with the others. The groups had a common computer office where they could check their e-mails or read instructions from the managers.

They had a common organization of work where the managers allocated orders to all the employees, with whom they then collaborated to complete assignments in the different laboratories. The group that was not located at the main office had another way of organizing their work, explained further below.

6.3. THE FIRST MEETING – PRESENTING THE RESULTS OF THE QUESTIONNAIRE

I presented the results to the production unit in June 2011. All the employees were gathered in their meeting room and a lively conversation was going on. Coffee and cake were served, and the employees made jokes about it and asked me to come more often in order for them to have cake again. They laughed a lot, and I sensed a family-like atmosphere. Some of the employees made jokes to the managers, and there was a sense of equality between the managers and the employees. I felt several times during my visit that I wanted to be a part of their community, and I quickly felt acquainted with them. After my presentation they asked me questions aimed primarily at the subject of stress and how employees affect each other at work, and they seemed interested in this area. The manager ended the presentation by saying to the employees that the management group would use this study to improve their management skills and hoped it could improve their working environment altogether.

In September 2011 I presented the results of the questionnaire to the research unit because the management wanted to wait until they held a seminar all together and had a chance to discuss the results in depth. I was invited to join the two-day seminar at a hostel outside of Copenhagen. When I arrived, there was an introduction by the manager, and afterward a consultant from the company presented the results of a personality test they all had filled out prior to the seminar. The management hoped that an insight in each other's personality profile would improve their cooperation skills. After my presentation there were a lot of questions, mostly concerning the statistical

value of my results. There were a lot of – for me – statistically difficult questions, and it seemed like a natural part of their communication form to critique what was presented to them. At one point I was affected by some of the questions asked by the researchers because they were asked in a critical tone and made me feel as if my presentation was of no value. Afterward one of the lab technicians addressed me and said, “*Don’t mind the researchers – it’s just their way of talking.*” The sentence was said in a caring tone toward the researchers and pointed to an acceptance of their communication style seen from the inside while at the same time signaling an understanding of how it could be interpreted from the outside. What she said tuned my attention to whether the critical stance was characteristic for the researchers in general and also to the relation between the researchers and the lab technicians.

After the presentations, lunch was served, and while I stood by the table with food and looked for a place to sit, I was struck by what Coffey has called *the physical awkwardness of the body* (Coffey, 1999). She described how there may be no proper readymade or appropriate place for the ethnographer to co-locate and that it is often difficult to know what to physically do in the field in order to look natural, comfortable, engaged, and welcoming (Coffey, 1999). I noticed how, during the seminar, I often engaged in different conversations with the participants in order to reduce my physical awkwardness, but it reduced my focus on observing the participants and their actions. I then had the role of a questioner instead of an observer or participant. My attention was drawn to my own physical awkwardness instead of to the field. This was an issue that followed me during my fieldwork but which progressively and fortunately gained less and less attention.

But while I was looking for a place to sit and was overwhelmed by the physical awkwardness of the body, a man approached me and started to ask questions about my presentation. We talked for a while and found a place to sit together. He talked openly about his own experiences with stress, and we had a long conversation over lunch. During the seminar I often approached him as he became a secure base for me in these new surroundings. He later became my key participant and provided me with information about happenings and meetings at the company I could attend. He arranged the group interview with the researchers and invited me to participate in his workday. In some ways he could be characterized as a *gatekeeper* (O’Reilly, 2009) in the sense that he smoothed the access to the group due to his social and professional status in the group. In the social network analysis, I could see that he was a person with a lot of relations to the other employees and functioned as a *boundary spanner* (Richter et al., 2006), which refers to a person that builds bridges between social networks. He had a highly specialized function with a lot of responsibility, so professionally, he also had a high status. He was very likeable and helpful, and because of all of these factors, he became my key participant.

6.4. THE FIRST DAY AT THE TWO DEPARTMENTS

The first meeting with the employees from the research unit in the hostel was interesting and generated a lot of interesting observations, but the first meeting with the employees in their accustomed surroundings, their workplace, became a “*diagnostic event*” (Baarts, 2010) or “*key incident*” (Emerson, 2004). A diagnostic event is where something happens during fieldwork that is likely to be revealing for the research as a whole and is thus diagnostic for the generated knowledge. This difference in contexts enhanced my focus on the social dimensions of the physical room and the working organization as constituting their social interaction and actions. In general the arrival is often a diagnostic event that constitutes the generation of knowledge and becomes crucial for the ethnographic attention and the anthropologist’s knowledge generation (Baarts, 2010). O’Reilly (2009) describes how it opens up new lines of inquiry, directs analysis in new ways, or confirms emergent hypotheses. The arrival was a diagnostic event for me too. In the following section, I describe my arrival at the workplace and how this meeting came to be diagnostic for the generation of knowledge about the distributed nature of stress.

The research unit (field notes extract)

When I entered the front door of the building, I entered a hall with a door in the middle, a door to my left, a door to my right, and a stairway to the first floor of the building. A glass wall allowed me to look into the room behind the door in the middle. The office was the department manager’s office, but he was not there. I opened the door to my right and entered a corridor with offices on each side. Most of the offices were multiperson offices, and because the doors to each office were open, I could hear lively conversations in some of the offices. A woman stood at the door to one of the offices and talked to a woman who was seated behind a computer. In another office a man had rolled his office chair to one of his colleagues, and they were engaged in a conversation. I went back to the hall and went through the door to my left. Another corridor emerged, and on each side were one-man offices with most of the doors closed. There was silence.

The production unit (field notes extract)

I entered a long corridor, and after a few minutes’ walk, I arrived at the department manager’s office. Mary was seated behind a computer, and when I knocked

on the door, she looked up and said, "Hi, Tanja, and welcome." We small-talked a bit, and then she led me to their break room, where she would shortly after introduce me to the employees. Beforehand she had asked me to send her a plan of the groups I wanted to conduct my fieldwork with, for how long, and how I planned on doing it. When we arrived at the break room, she offered me a cup of coffee and a place to sit before the employees arrived. The employees arrived, and she gave them some instructions about their work, and afterward she introduced me and my stay at the department. Afterward she gave me a short tour around the department where she showed me the placement of the different laboratories. She had made a scheduled plan of my initial observations at the different laboratories and introduced me to the first group. We agreed that I should come to her office after each meeting with a group in order for her to introduce me to the next group. I noticed her caring and somewhat humble way of addressing the employees when she introduced me, and I could sense a concern for the employees and an interest in protecting them as much as possible during my observation. I noticed that I was not introduced to the last group in the department, and when I asked whether I could meet them, she looked worried. She told me that she had to ask one of the group members as this group member did not feel well owing to the work pressure.

These two descriptions of the first day of my fieldwork at the departments came to be quite significant for the rest of the fieldwork and revealed two aspects that developed into important themes in the analysis, which I unfold below:

1. The management in the two departments had a different approach to the employees.
2. There seemed to be different cultures within the different groups.

6.4.1. THE MANAGEMENTS' DIFFERENT APPROACH TO THE EMPLOYEES

The difference by which the management addressed my conducting the study supported the employees' experience with the managers.

When I arrived at the research unit, the manager was absent, and I made arrangements to be shown around the department by employees. I addressed some of the employees, and they offered me an office seat. In this initiating phase, I had a lot of freedom in the way I conducted the fieldwork and whom I talked to.

When I arrived at the production unit, the manager introduced me to the employees and showed me around the department; she had scheduled my visit to each group in the department.

These first meetings thus tuned my attention to protective vs. nonprotective actions toward the employees from the managers. During the fieldwork this theme was elaborated further. In an in situ interview with a lab technician in the production unit, we talked about action possibilities in peak periods with excessive workload. She told me that their manager always helped them and listened to their needs. In peak periods their manager usually found a student to come in and help them. It was a common experience of the employees that the manager listened and tried to help them if they felt busy, and one of the employees stated, "*She [the manager] is one of us.*"

In contrast to the experiences of the employees in the production unit, the employees in the research unit felt that the management did not protect them against peak periods of excessive workload and that the management was more concerned with the demands from the top management than the well-being of the employees. One of the employees stated, "*Our [deputy] manager ought to be 'our man' – not the managers man*".

These two management styles seemed to have an impact on the social and cultural processes of stress because it created resources for and barriers to coping, which in the case of the research unit seemed to strengthen the cultural characteristics of the groups. The process is described in chapter 9. In the following sections I will address the research unit and subsequently address the production unit.

6.5. THE RESEARCH UNIT

6.5.1. ABSENCE AND PRESENCE AS CULTURE-SPECIFIC CHARACTERISTICS

As the observation sequence describes, the two groups in the research unit differed in the way they interacted with each other. As earlier described, the positivistic way of addressing reality affected me at different stages of the research process. During the fieldwork it made me focus on what I could see. Hastrup (1989) has described that within the natural sciences, sight is the means to reach knowledge, but with cultural science, one cannot “*see*” a social structure or a meaning structure. When I entered into the world of lab technicians in the research unit, they were visible and present. They were present at coffee breaks, at lunch; I could see how they talked, how they were compassionate toward each other, how they helped each other with work assignments, how they laughed; and I could hear the content of their communication, which primarily was social, personal, and concerning everyday issues. There were clear and visible signs of a part of their social structure.

But my observation of the researchers was in the beginning characterized by very few descriptions of their social interaction. I was frustrated by the content of my observations and descriptions because the researchers were spending a lot of time in their offices or at external meetings, and at some point I came to think that the descriptions were of no use. But then I realized that verbal communication was less important than the experience itself. As Hastrup (1989) argued,

“Silence is a vital part of the cultural specific experience. A too narrow focus on the verbal articulations twist the experienced reality, where not only silence, but also other kinds of absence contribute to defining culture as it is”

(p. 20).

I started to focus on what kind of absences characterized the researchers. Besides one subgroup of researchers who cooperated on a larger research program, the researchers had different kinds of absences. There was *professional absence* because their cooperation on assignments was limited, *physical absence* because they often attended external meetings or worked in their offices, *relational absence* because the frequency of social communication during a workday was limited, and *absence of time* because they often felt that they had too little time to conduct their assignments.

Absence seemed to be a defining part of their culture, a pattern that slowly emerged during the fieldwork. A new research question emerged and structured my observations of this group: What did these absences mean to the researchers and what relation did it have to their appraisal and coping practice? And what did presence mean for the lab technicians’ appraisal and coping practice? These questions are addressed in chapter 8.

For a long time, I did not know how to explain these group differences as I observed

the researchers interact socially; they were physically present and they did cooperate on assignments, but as Hastrup (1989) has argued,

“cultures are implicit comparative: It means that a culture can only materialize itself in relation to and in contrast to another culture. . . . We see the culture as such in the differences there is between it and other cultures”

(p. 14).

So compared to the lab technicians, there was an absence. The researchers did communicate with each other, just to a lesser extent than the lab technicians, and when they did, it often was in a different way. When I joined the lab technicians at lunch or coffee breaks, they talked about TV series, things they had done during the weekends, but when I joined the researchers, they often talked about professional issues. At one point I observed a group of researchers laughing together. When I heard their conversation, they laughed at a joke about enzymes, and the others elaborated upon that joke with comments about chemistry concepts and enzymes. I did not understand anything of what they were talking about and remembered one of the lab technicians saying that the researchers always talked about professional issues at lunch and it made it more difficult to interact socially with them.

6.5.2. ACCESS TO THE FIELD

Access to the field is not limited to access from formal gatekeepers such as the HR consultant and the management or by informal gatekeepers such as my key informant. Access to the employees' thoughts and lives was for me transgressive and something I had to continuously negotiate. One issue that was especially challenging for my gaining access was the nature of my study.

The nature of my study was to explore the social and cultural embeddedness of stress, but with this perspective, I was afraid the employees would perceive my study as an attempt to reduce the problems they experienced with their working conditions to those of social processes. I felt the urge to hide what I was studying because I felt I was blaming them for their problems with working conditions and ignoring their actual experiences. This feeling affected the research process as I did not feel entitled to be there and thus found it difficult to approach the employees. They were very welcoming and open minded, found me a place to sit, and allowed me to join all of their activities, so I did not feel any resistance from them. I felt it was a personal and professional thing, but diving further into this schism, I realized that I had adopted a central element of the stress discourse, which I later noticed was a distinctive element in the organizational and local stress discourse (and in the general stress discourse) – the question of blame. Who is to blame for the development of stress? I was entering into a normative field where a lot of emotions, frustrations, and polarizations were

associated with the concept of stress. Different answers to the question of blame were to be found among the employees, and the answers were either the individual or the local management/top management, or both. A pattern also emerged in this respect as the researchers tended to address the question of blame in terms of personal aspects or a combination of personal and work environmental conditions, and the lab technicians primarily addressed the question in terms of the working environment. The two competing discourses of stress, which previously have been described and which connote contemporary stress research – the work environmental and the individualistic discourse – were embodied in the two different cultures of the lab technicians and the researchers. And I was introducing them to a new discourse – the social stress discourse – and to a different answer: the group or culture was to blame.

The nature of my study had an inbuilt barrier to entering the work lives of individuals because the two stress discourses were legitimate ways of talking about stress and mine was somehow an illegitimate discourse that was difficult to grasp and conceive properly. But then I noticed that I did not feel that way in the production unit. We talked openly about the subject during my observations, and a lot of employees described experiences from other places they had worked where they felt they were influenced by others in ways to feel and act. I came to think of the differences between the two departments. In the production unit, there was a low level of stress and good access to management and much willingness from the management to help employees. There was nothing at stake compared to the research unit, where I introduced the discourse in the middle of a struggle against working conditions where all three professional groups each tried to make the management listen to their frustrations and help them. And the level of stress was much higher in the research unit than in the production unit. There was much more at stake within this department, and they were negotiating with the management on the question of who was to blame.

The processes of gaining access to the different groups were eased by my finding the second key person and an office seat. This person was a researcher and belonged to division B. He can be characterized by Spradley's (1979) conception of an "*encultured informant*", which is a person who is consciously reflexive about his or her culture. I had engaged in conversations with him at the seminar, and in the conversation, he reflected upon the culture of busyness within the group of researchers. His reflections were very interesting and highly informative, so I asked him if he could be my key informant. He invited me to meetings he attended and let me be a part of his workday. He reflected upon the events I participated in and came to me to let me know if how the employees acted was characteristic for them or not. One example is when I attended a project meeting. I was tuned in to the critical way the researchers often addressed each other, which I also had experienced at the seminar, but here they were overly nice toward each other and acted appreciative of each other's contributions. Afterward my key informant told me that this behavior was highly unusual for them. He said that he had never experienced such nice behavior before. This provided me with useful information both about how I affected the field and also about their normal interaction.

Another event that smoothed my access to the field was getting two office seats – one in each division. On my first day in the department, a lab technician in each division showed me around. I had made these arrangements at the seminar. I talked with both of them about a place to sit, and both had a free office seat in their multiperson offices. The acquisition of an office seat reduced my feeling of physical awkwardness as the office seat became my secure base, and at the same time, it made it possible for me to rather discreetly write my field notes when natural pauses occurred. During my observations I wrote down cues and quotes, and during natural pauses, I went to my office seat to write my notes more thoroughly. At the end of day, I wrote down reflections, wonderings, feelings, and things I needed the participants to elaborate upon.

6.5.3. DIAGNOSTIC EVENTS

During my fieldwork I experienced several diagnostic events that in different ways either opened up new lines of inquiry or directed the analysis in new ways. Two of them are described in more detail below.

The collective fight (field notes extract)

One morning I could easily feel a somewhat hectic atmosphere among the lab technicians. One of the lab technicians approached me and said that I should have attended the department meeting the day before as the atmosphere was really poor. She quickly presented the problem to me and told me that they were dissatisfied with a managerial decision and had called a meeting just for the employees. I asked if it was for all the employees. She shook her head and told me that it was only the lab technicians and technicians who were invited to the meeting. The researchers did not have time to engage in things like that. I was permitted to participate in the meeting, which was held in one of the larger offices. One of the lab technicians told me that she had approached the management and expressed her dissatisfaction with the managerial decision and argued why it should be altered. The management had refused her proposition, and at the department meeting, the division manager also had refused to alter the decision. Some of the lab technicians and technicians shook their head while the lab technician explained what had happened, while others exchanged looks of

despair. Some contributed with considerations on how to cope with the situation, and they discussed back and forth. During the discussion the frustration of the lab technicians and technicians was exposed and came to be a strong presence. The initiator of the meeting stopped the discussion and urged the employees to sustain a constructive way of talking about the issue and to reach a joint way of coping with the situation. Afterward they agreed upon how they should cooperatively cope with the situation, and they delegated assignments in relation to the decision.

This event drew my attention to two things. The event exemplified an attempt at collective coping where they collectively planned and conducted a coordinated act in order to change a situation experienced as threatening to their well-being. But the event also reflected the lab technicians' and technicians' collective struggle to change their working conditions, which was characteristic for these groups throughout the fieldwork compared to the researchers. This process is addressed in chapters 8 and 9.

The calendar (field notes extract)

"Well, should we end the meeting?" Pete looks up after he has written the last word in the notebook. Three of the participants in the meeting had to leave already due to overlapping meetings elsewhere in the organization. The rest of the participants in the meeting left except David and Pete.

Pete says, "I'm so tired of reading patents."

David agrees, "Yes, it takes a long time and it can break the calendar." He looks at his electronic calendar and says after a while, "I just felt so good when I looked at next week, but then I saw that it was 2012 I was looking at. Now when I look at my next week, I just get hit hard. I get all sweaty. I look at the calendar and it is booked with meetings."

Pete looks at his calendar and says, "When I look at my calendar, I only have three hours to do my actual work. The rest is meetings and patents."

"That won't last, Pete."

"And I can see that the slides I have to finish I have booked from five to six o'clock tomorrow." They pause in their conversation, and then Pete says, "Well, I just needed to complain a bit."

"Well, you have to do that sometimes."

This observation tuned my attention to two things: the artifactual embeddedness of the appraisal of busyness and busyness as the primary subject of their conversation. When I addressed the researchers in their office, they often talked about busyness and in this respect often invited me to see their calendar to illustrate their level of busyness. The calendar was thought of as an aid to get an overview of the requirements at work, but it also seemed to enter into the appraisal process, and the properties of the calendar, such as the fact that all working assignments are visible at once, seemed to scaffold their appraisal of busyness. The electronic calendar seemed to be a symbol or sign of busyness, and it was very much present in their conversations. This process is addressed in chapter 7.

Busyness, calendars, and time became issues that often were present in my informal and formal conversations with the researchers.

6.5.4. DIFFERENT PERCEPTIONS OF TIME

The different constructions and perceptions of time became an important theme during the field study. The combination of conducting a specific interview with a researcher and subsequently participating in a working assignment with a technician implied that a variety of previous observations, such as the sensing of atmospheres, actions that did not have a pattern, mimics, gesticulations, etc., suddenly became patterned in the theme of different perceptions of time.

I remembered the researchers and their interactions – they were talking fast, were always attuned to the subject they were discussing, often had a fast response to what was discussed, and seemed alert to some point. I felt an energetic atmosphere among them, which was inspiring. Furthermore, they planned ahead of time by the use of their calendars or calculations of time in relation to future assignments. Their conception of time was related to the future. Time was at the same time something that could be modulated, enhanced, or diminished, and thus it was something changeable they used in order to adjust to demands. When they or the manager reduced the time they were to spend on each assignment in order to fit more assignments in, they had to think faster, read faster, and write faster; it was their mind they had to enhance. This could explain their constant alertness and fast response to the issues discussed. And I came to think of how the managers, and to a certain point also the researchers themselves, perceived them as disembodied from their working practice. When they in collaboration with the management calculated the time they were to spend on assignments, meetings, presentations, etc., the management did not take into account that they had to walk several minutes to get to a meeting in another area of the organization and several minutes to get back again. The embodiment of the employees in a specific physical surrounding took time but was not included in the management's analysis of time.

And then I remembered the technicians. I remembered conversations with them, and I remembered especially the natural breaks in their conversations; they walked at a slower speed, not slowly but calmly. Though of course there were individual differences, there was an overall characteristic of a calm atmosphere. I remembered one day when I joined one of the technicians in the laboratory where he was to granulate a product. We both wore a large white suit and a heavy oxygen mask, and I followed him around the lab while he handled three large machines. I felt uncomfortable as I was not able to move around like I was used to, and I noticed that I walked around slowly because of the resistance of the fabric and heavy weight of the mask and oxygen. After starting one of the machines, he said, *"Now it takes two hours – there is not much you can do but wait."* When he said that, I felt at first impatience, but during the time we waited, I began to feel an ease and calmness. There was nothing we could do to hasten the process. In a subsequent group interview, one of the technicians said, *"Remember the three ts: 'Things take time.'"* Time was perceived as a fixed, unchangeable category. Furthermore, the technicians did not focus on the future but the here-and-now. They were waiting a lot of their working time, and they had found a way to adjust to this working condition by accepting the fact that things just take time.

These experiences reflect how the working conditions mediated a certain perception of time and way of coping. The sharing of bodily experiences with the suit and mask and the waiting time exemplified how experience is linked to the body and the mind. The actual sharing of time with the employees gave me an insight into their different perceptions of time and how it structured their experiences and practices and thus how it was embedded in their appraisal and coping process. At the same time, it also shaped a focus on the material and work organizational mediation of the social and the communicative processes and how stress in this respect is not solely reduced to that of discursive and communicative processes. The processes inherent in stress are deeply embedded in the material and work organizational context. In this respect, time is not just a semantic concept but a sign with different interpretations attached to it, and through my situatedness in the field, I experienced the elasticity of the concept. This became the preliminary step toward combining the working organization and physical surroundings in the understanding of stress and at the same time looking at the individual and contextual appraisal and coping practices, which is a central theme in chapter 8.

6.5.5. THE INTERVIEWS

SELECTION OF PARTICIPANTS

After one month of fieldwork, I conducted my first interview, which was with one of my key informants. I wanted to know the field, the persons within it, their interactions, etc. before I chose participants for the interviews. And I wanted to develop the interview guide with “wonderments” from the field. My intention was to gain the largest possible variation in the group of participants even though with so few persons it was impossible to get a representative sample in relation to sociological variables such as gender, age, tenure, etc. This method is also called *sampling* (Yin, 2003). I chose researchers and lab technicians from different divisions, different genders, different age groups, different tenure, different levels of stress (extracted from the quantitative results), and different centrality in the social network (extracted from the social network analysis).

My selection of participants was made in order to reach an in-depth understanding of the participants’ conditions and processes and to be able to illuminate the variation in relation to individual cases.

For the group interviews I selected participants with a point of departure in their professions. I conducted interviews with the researchers, lab technicians and technicians from each division and the researchers within Division A, I further divided in two groups. One experienced group of researchers and one newly employed. The reason for that was to explore differences between these groups in how they appraised their working environment and coped with it and if they negotiated the cultural messages of busyness differently.

THE INTERVIEW GUIDE

My point of departure was a semistructured interview guide; I had prepared beforehand a selection of themes and questions, and I followed up on themes that the informant presented or that emerged during the interview (Kvale & Brinkmann, 2008). The themes that I had developed beforehand were developed from my overall theoretical outlook, which was not narrowed down to one theory at that point. I was inspired by critical psychology (Dreier et al., 1997; Holzkamp, 1996, 1998), situated learning (Lave & Wenger, 1991), and the theory of distributed cognition (Hutchins, 1995). The themes in the interview guide for the individual interviews were (1) description of a typical day at work, work assignments, working organization; (2) personal interpretations on the results of the questionnaire; (3) social network; (4) individual experiences with stress and individual appraisal and coping; (5) interpersonal appraisal and coping; (6) group appraisal and coping; (7) cultural characteristics of the groups; (8) trajectories of participation and stress; (9) physical artifacts; (10) stress discourses; and (11) changes over time in perception of stress and ways of coping.

The themes in the interview guide for the group interviews were (1) definition of stress, (2) description of situations, which causes distress, (3) description of their way of coping with distress, (4) description of their group, (5) description of their working environment (6) Changes over time in perception of stress and ways of coping in the group (7) stress discourses.

Before each participant or group started, I verbally explained the aim and scope of the project and the ethical guidelines for the project, such as preservation of anonymity and my obligation to confidentiality.

During the interview I had several positions in relation to the creation of knowledge (Rubow, 2010). I collected information through my questions about their working practice and their typical day at work.

The conversation also created room for identification with what was told. During interviews with the lab technicians, I felt compassion for their frustrations about their working conditions. My questions concerning this issue were related to their personal experiences with being busy and their typical ways of coping with busyness. Furthermore, my interest was in their interpretations of their work life.

I also had a reflective position, which organized and changed what I was talking about. I was interested in the individuals' interpretations of their work life, interpretations of the specific results of the questionnaire, reflections upon their own professional group and the other professional groups, and reflections upon stress. One of the participants, for example, reflected upon the different perspectives on stress in the department in the interview, not just his own experiences and interpretations but the different narratives or discourses of stress at the workplace.

These different positions thereby reflected different epistemological positions in the interview as I varied between questions from pragmatic (how they acted or coped with their working conditions), phenomenological/hermeneutic (their experiences with stress and their interpretations of their working experiences), and constructivist positions (their understanding of the concept of stress).

THE MEDIATION OF MATERIALITY

During the interviews the material surroundings and artifacts came to be significant for the interview. Some of the interviews were conducted in the employees' offices; different artifacts in their offices entered the interviews, and a *double mediation* took place. The artifacts mediated the content of the interviews and at the same time revealed how a distinct coping practice was mediated through technological or physical artifacts.

Stepping into an office is stepping into a “home” of work, a special “*social psychological room*” (Tjørnhøj-Thomsen, 2010). It entails distinctive practices, the historicity of work life, diagnostic events of working life, life outside work, interests, current practices and assignments, etc. Entering into this social psychological room shaped a distinctive context for the interview that also was reflected in the interview. It became a physical and symbolic frame of reference that entered into the conversation about the employees’ appraisal and coping practice.

During one interview I noticed how the material surroundings became a factor that mediated the theme of the interview. At one point, when we were talking about being busy, the participant noticed a bottle of Havana club rum on his shelf and brought this into the interview:

“That’s why I have that Havana club rum placed there. It is my own little token for once in a while to remember that I also must have time to do fun stuff.”

The material mediation became a field of attention throughout the fieldwork and is discussed in chapter 7.

Another example is an interview where the participant had an association when he looked at the computer screen he sat by while we talked about being busy:

“I have shifted to a ‘get control over your life’ principle. It’s about putting all your incoming assignments in outlook with a deadline and everything you need to know in order to solve the task.”

This was his primary way of coping with busyness. Another participant had an association from a piece of paper that was hanging on the wall in front of him with calculations of time percentages in relation to work assignments. He then explained how this was his primary coping strategy for being busy. In another interview I had an association from looking at a frame on a shelf with the words “*greater personal efficiency*,” and I asked the employee what it was; the interview came to be about an efficiency course some of the employees had attended in order to cope with the rising work demands.

In other interviews that were situated in a meeting room, the material surroundings were less significant and the physical surroundings were not as significant to the interview. It made me focus upon how the coping practice also is embedded in artifacts and physical surroundings. Beside the epistemological point, it also focuses on a methodological point, which also Hasse (2010) has argued. She stated that the physical and symbolic room determines and meshes with the dialogue form and content, which thus is constitutive for the insight we get (Hasse, 2010).

6.5.6. THE TRANSMISSION OF ATTENTION FIELDS – BECOMING A CONSULTANT

During my fieldwork I progressively began to adopt the *field of attention* of the lab technicians. Gammeltoft (2010) has argued that the anthropologist's personal involvement in the fieldwork implies that anthropologist knowledge always is positioned. This entails that part of the social world is more analytically clear than other parts of the same world. I noticed that I began sympathizing with the employees in general and especially with the lab technicians. They struggled to change their working conditions and were focused on making the management employ more lab technicians to keep up with the work pace. My office seat was among the lab technicians, and they were the ones I most frequently interacted with. One day one of the lab technicians said to me that I was their last hope. They had tried to make the management listen for a long time, but now that I had come to thoroughly examine their working conditions, they hoped that the management would listen to me. Instead of sustaining the analytical perspective I had to begin with, I started to focus on how to solve the problems they experienced. Progressively I took a position they wanted me to take – a person that could help them – and I noticed how I began focusing on the management as the main problem. I had slowly adopted their field of attention.

The management was also focused on a solution to the problems experienced by the employees, and without being asked, I saw it as my obligation to help them and provide a solution to the problem. I slowly adopted a consultant position, and the reason for this has to be found in three factors: One was my focus on giving something back as they had used much of their time on my questions, interviews, and observations and allowed me to enter into their work lives. Another factor was that I had identified with their problems and thought that with my knowledge, I could help the employees. And the third factor was that having a legitimate function – as a consultant – in the group became appealing to me. My function as a researcher and psychologist had created some mistrust or uncertainty among the employees. In the beginning it seemed to block my way into the group and seemed to sustain my peripheral participation in the group.

A researcher asked me, “*Does the manager know whom you interview?*” I assured him that it was confidential who was interviewed and that I did not pass anything on to the manager. A lab technician said as a joke, “*Now you have placed a spy in our office*” (a trainee had gotten an office seat in her room). I was uncertain of how to react to this question and responded with the remark, “*Yeah, I need to keep an eye on you,*” while I smiled. When I asked a lab technician if she would participate in an interview, she said, “*I don't know if I dare,*” and smiled. I briefly told her about the content of the interview and that she would be anonymous and the interview confidential. Another said, again as a joke, “*What do you see – are we stressed?*”

Because I had entered a field with a lot of tension and frustration and my function was a psychologist exploring stress, it became harder for me to “*go native*” and become a legitimate member of the group. There was suspicion that I was the managers' man,

which reflected their mistrust toward the manager, and my function as a psychologist signaled that I was an authority with the ability to define them and look behind their actions. But the employees were also highly dependent on my results because the manager had said that my results would determine whether there was something the management should act upon. With these words he had somehow placed me in a consultant role, and during my fieldwork the employees also did so. During my fieldwork the employees found a position in the group for me – someone that could help. They also started to suggest people for my interview or suggest places or people I should observe. One of the lab technicians asked me if I also was to interview their secretary. I said yes, and she said, *“Good. I also think you should do that.”* At the beginning of a group interview, one of the lab technicians questioned my choice of group members in the interview; she thought the secretary ought to participate in the group interview because she was part of the group.

The way it affected my observation was that at times I was attuned toward the management in my observation, and during the interviews I was occupied with getting their elaborations on the results from the questionnaire in order to be able to provide an in-depth presentation of the quantitative results to the departments. Furthermore, I decided to do more individual interviews than I originally had planned in order to hear all voices, thereby taking a quantitative and consultative approach.

After a counselling hour with my supervisor, he articulated the position I had taken, and it made me focus upon my primary position as a researcher. But until the end of my fieldwork, I continuously struggled with keeping my focus on my position as a researcher.

6.5.7. CLOSURE

By the end of my fieldwork, I had spent 2 days a week during the 5 months at this department, so it cannot be defined as a traditional ethnographic study, which usually lasts longer. In the aftermath I would say that I adopted elements and was inspired by this methodological and philosophical approach. One of my main problems was conducting multisited fieldwork combined with both quantitative and qualitative methods. It was very time consuming and difficult to carry out properly with respect to the ethnographical mind-set. This was also one of the reasons why the fieldwork in the production unit slowly was reduced and I focused more on the research unit. I did not feel I could conduct my fieldwork properly if I were to spend just as much time at the other department.

In the following section, I describe my fieldwork at the production unit.

6.6. THE PRODUCTION UNIT

In the following section, the results from the fieldwork in one of the groups in the department of the production unit are presented because they became central contributions to the understanding of the distributed nature of stress described in chapter 7.

The group was a work unit located 13 miles from the head office and only met with the rest of the department at department meetings once a month. It consisted of three men and two women. Two of the employees were lab technicians and three were technicians. Two days a week, an additional technician from the main department came and worked within the work unit.

As described earlier, I chose this group because of their specific ways of organizing their work and because in the network analysis, I could see that this group had a low level of stress compared to the other groups in the department.

The first day (field notes extract)

I was late as I had difficulty finding the building where the work unit was seated. The work unit was situated around 13 miles from the head office in buildings that belonged to a sister company of the organization. Shortly after I rang the bell, a smiling woman opened the door: "Hi and welcome." I thanked her for letting me participate in their work life, and she replied that they only thought it was interesting to have me there. We entered into a long corridor. "You can leave your bag and jacket in here." She pointed to the door on the left, which took me into their lunch room. Afterward she followed me on the other side of the corridor, and we went into another room, where the production site was located and where the group was performing their work. They all raised their hands and said hi: the elderly man, the two younger men, and the elderly woman. The woman who escorted me to the production site said, "This is John, the grand old man [he laughed], this is Jennifer, and these two are Michael and Martin." John, Martin, and Jennifer were assembled around a large table filled with test tubes into which they pipetted liquid. Michael stood at a table behind the others and was filling a bucket with different materials. I told them my name and once again thanked them for letting me into their work life. I could sense a nice and warm atmosphere, which put me in a good mood, and I felt

energized when I was there. There was a family-like atmosphere

This first meeting with the group was a *diagnostic event* (Baarts, 2010) in the sense that the bodily feeling of a family-like atmosphere became a point for further exploration and was characteristic of the group during my fieldwork. In the research unit, I struggled with physical awkwardness, gaining access to the groups, and the nature of my study, but in this group none of these struggles were present, which seemed partly to be due to the family-like atmosphere. I quickly felt accepted in the group, which I experienced in my wandering around in the building, the initiation of conversations, and the ease with which I stopped and observed things they did or artifacts on the walls, or when I one day poured myself a cup of coffee without asking. Small things indicated a progressive sense of being accepted in the group.

The group used humor as an important part of their interaction by making fun of each other or teasing each other in a caring way. After a month of observation, I arrived at the workplace one morning with a huge plaster on my finger, which was inflamed and swollen. One of the employees asked me what had happened, and I told them about my finger. They came up with dramatic stories of their own experiences with inflammation and subsequent blood poisoning, and it became the center of our conversation during their work. I became more and more worried over the fate of my finger, and the employees seemed to be amused by the fact that I was worried over a tiny inflammation. At the subsequent coffee break, one of the employees joked, “Maybe you ought to sit close to the door so you quickly can rush to the hospital if necessary,” and all the employees laughed loudly. At that point I felt I had made a step toward a greater acceptance in the group; I now was someone they could tease.

I did not have an office seat but just wandered around in the production room, talked with the employees, or wrote my notes in the meeting room. I conducted only one group interview and no individual interviews with the group as the fieldwork was characterized by many in situ interviews with the employees and ongoing articulated reflections of my observations I discussed with them throughout my participation in their working life. I did not have a particular key person; all employees functioned somewhat as key persons as they all gave me insight into the dynamics of their work and smoothed my access to the field. The fact that I did not need a key person gave me information about their interaction and collectivity.

Throughout the fieldwork, three themes emerged that entered into my overall understanding of the distributed nature of stress: (1) the physical embeddedness of the stress process, (2) the historical shaping of the appraisal and coping practice, and, somewhat related to this, what I choose to call (3) mediated habituation.

6.6.1. THE PHYSICAL EMBEDDEDNESS OF THE STRESS PROCESS

The first day of my fieldwork, I was shown around in the building by Susan, who also had introduced me to the group. She showed me the two large rooms where they performed their work processes, and afterward we entered the lunch room, which comprised a small kitchen, a lunch table, three computers placed on a desk, and a large blackboard. She told me that here they held group meetings with their division manager, had coffee breaks, checked their e-mails, and organized the work processes by means of the blackboard. When she talked about the blackboard, she smiled and told me how it was a part of their implementation of Lean (Drew et al., 2004) one year before. The reason for the implementation was to optimize production in the department and improve the welfare of the employees. She described how the employees were engaged in the exact implementation and the elements of Lean they should implement and adopt. One of the employees in the group had been educated in Lean and supported the ongoing habituation to the implementation. They had implemented four elements of Lean.

Firstly, they had tidied and marked each artifact in the room so the working processes were more efficient.

Secondly, they had physically rearranged things in order to decrease the steps needed to perform their work.

Thirdly, they had assigned responsibility for organizing the work to the employees, which involved a shift from having a pile of orders lying on the table to using a large blackboard where they allocated the orders for the week to come. Each morning one of the employees allocated new orders on the blackboard so the orders did not pile up. A green note was placed if the deadline was within 2 weeks.

Fourthly, they had changed the work processes from individual to collective. Before, each employee had a working assignment he or she was responsible for; now they had divided each working assignment into different parts, and each morning the employees were allocated different parts of the work assignment.

Another of the employees entered the conversation, and together they pointed to two elements in the implementation of Lean that seemed especially important to them – visualization and the work organization. One of the employees explained how tidying and marking each artifact seemed to give them an overview of the working situation they did not feel they had before. Now the physical surroundings were systematized visually, and it gave them a sense of structure in their working process.

Furthermore, they described that the fact that the workload had become visualized – they actually could see it on the blackboard – was important for their sense of overview of the workload. Before, they were affected by watching orders pile up on a single day, but now the pile was allocated on several days, and one of the employees stated that now she felt calm and got an overview when she looked at the blackboard. Their appraisal seemed to be affected by how they visually could see the workload and seemed distributed through the interaction between the employee and the physical artifact – the blackboard. One of the employees stated that they actually talked less

about busyness after the implementation: *“You can see it is shared and placed there”* (pointing at the blackboard). This process is further analyzed in chapter 7.

But the changing of the work organization from individual to collective processes also seemed to have had a profound impact on the group. Before, each employee had a work assignment he or she was responsible for; now they had divided each work assignment into different parts, and each morning the employees were allocated different parts of the work assignment. One person mixed the materials, another filled pipettes, and another documented the process on the computer. One of the employees said, *“Now busyness is shared among us. Before it was each individual being busy.”*

Another employee added, *“I think we now cope with things together. If someone says that he cannot see through things, there is always one of the others who tries to calm him down and says, ‘We take one thing at a time and help each other.’”*

The physical surroundings also seemed to invite the employees to engage in shared ways of appraisal and coping because their work processes were performed in one room, where they spent their whole workday together. When they performed work at the computer, it was either in the same room or in the lunch room, which also functioned as a joint room.

6.6.2. THE HISTORICAL SHAPING OF THE SOCIAL AND COLLECTIVE FORMS OF COPING

During the fieldwork I became more and more interested in why the group had developed such a strong group commitment. One day, while most of the employees were standing around a large table conducting a shared working assignment, we came to talk about their history as a group. Their understanding of their development as a group was characterized by specific experiences that seemed to have shaped this development.

One experience was with a former group member who had changed as a person, affecting the group negatively and creating factions and distrust among the group members. The second experience concerned a former group constellation where, according to the group, negativity seemed to flourish. This group had talked negatively about the workplace, about how busy it was, and the climate within the group was experienced as negative by the group members. After these experiences they decided that they did not want to experience this again, which seemed to have initiated specific behavioral guidelines. One of the employees stated, *“We have learned from a period where we experienced stress and where we aggravated the situation in the group. Now we have rules: keep it on an acceptable level and not aggravate the situation and not pass it on to other divisions. There is no need to do that.”*

Another employee added, *"We focus on facing the conflicts right away, speak openly and honestly about things, speak positively about each other, and help each other."* These ways of acting were also evident when they often tried to downplay negativity when it emerged and tried to calm each other down if they felt pressured or stressed. They thus often tried to prevent each other from thinking about the situation as a threat to their well-being. They often used the phrases, *"What is done is done,"* and *"We'll find out along the way."*

This following example is one of many where they used calming words in order to change the perception of the situation as a threat.

(Field notes extract)

When I arrived at the workplace, John and Martin were filling bottles with liquid. Susan was working in the small lab and Ira by the computer. Michael was standing at a table measuring different kinds of materials. Susan had finished her work at the small lab and arrived. She needed to interrupt the work process as she had to use one of the machines, and the others waited until she was finished. Susan said, "I get all pressured when people are waiting." John and Jennifer both answered, "Don't mind that. Just forget it and keep calm."

The development of a distinct appraisal and coping practice seemed to be reflected in experiences with former group members, which points to specific behavioral guidelines, new ways of organizing the working processes, and new ways of organizing the physical surroundings.

The strong commitment of the group that developed over time was, as previously mentioned, characterized by a family-like atmosphere. The word *"family"* was often brought up in the group and by the manager as a way to describe the group, but it also functioned as a way to mediate certain ways of coping. In an in situ interview, one of the employees explained this: *"It has been easy to enter this group as a new employee. It is like a small family. It demands that you be open about yourself and your privacy, but they are very helpful toward each other, and you kind of help each other all the time."* The family structure of the group thereby seemed to mediate more social-oriented and collective forms of coping. The division manager explained in an informal conversation: *"If I suggest something they don't agree with, then they stand up collectively against me. Then it is like a wall."* I often observed how they interacted with the division manager in a way that in the end, they decided how things were to be done.

One example is how they managed to change a decision from top management that every department should implement a specific safety program with standardized and formalized safety procedures, *“Dare to Care,”* in order to safeguard the employees against work-related hazards. In an in situ interview, I asked them if they also used Dare to Care. The group answered that they did not use it in the formalized sense as the other departments did because it was incorporated in their nature and way of being together; they cared for each other. They all looked ahead and warned each other of potential dangers, so this way of acting was an inbuilt part of their way of being together. After several discussions with the management, they were allowed to do it in their own way.

Another example also supports the observation that the collective community seemed to be more important than the management’s orders. When the division manager called a meeting, one group member said, *“You can forget about dropping by – we do not have time for that.”* The group explained to me that they had to finish an order and were in the middle of the working process. So they also developed collective ways of addressing the management.

In an in situ interview, one of the employees explained, when asked how they typically reacted to an increasing workload, *“Sometimes we talk just one-to-one, and if the other one feels the same way, we bring it up in the group and address Charlot together. Usually she helps us. Other times we bring it up in the group right away.”*

6.6.3. MEDIATED HABITUATION

Through entering into their work lives, I sensed that helping each other during the working process seemed quite natural for them, and there was a tacit understanding of each other’s needs. Observing the employees working, I observed how coping seemed to also be a habitual way of acting rather than a reflective willful act and not just an individual choice but placed in between persons.

(Field notes extract)

John was pipetting liquid in bottles. Martin had finished his assignment and looked around in the room. He noticed John and came over and began to pipette liquid too. Shortly after, Jennifer left the computer and looked around in the room. She walked over to John and Martin and took one of the boxes with bottles and carried it over to the machine that was to shake the liquid.

The continued complementation of each other's working process went on until they had finished the working assignment. One of the employees explained this working process: *"When you finish your part of the work process, you automatically start to help some of the others. You don't ask anymore but just begin helping. Before, you walked around alone with an order and performed all the work processes by yourself."*

In this case more social forms of coping, such as seeking help from each other, had become an integrated part of their action repertoire and a habituated way of acting with each other, and thus the actual strategy was placed between them in their interaction and thereby made available to the employees through interaction and habituation.

6.6.4. CLOSURE

The main points to be taken from this field description are as follows:

1. The physical environment entered into the employees' perceptions of the working conditions and their way of coping with them.
2. The appraisal and coping practice within this group had developed over time owing to past experiences in the group, physical changes, and changes in the group composition. This opposes the concept of coping as a static, individual way of acting within working conditions and instead points to a social and constantly developing way of acting.
3. Coping also is a habituated way of acting that is mediated by the social and physical environment. It cannot be seen only as a willful act but develops in a social practice and become a natural way of acting together.

6.7. ANALYSIS

My general analytical procedures are inspired by grounded theory (Glaser & Strauss, 1967) because I wanted to make an analytical induction of data material. The aim is to generate descriptive theory of the social and cultural nature of stress. Data were first read using an open coding procedure (Boolsen, 2010; Strauss & Corbin, 1998). The codes provided an overview where I could more easily recognize similar appearances in the whole data set. The codes were generated from both data and theory (Gibbs, 2007). The codes generated from theory were identified from the theoretical themes from the interview guide, subsequent theoretical elaborations during the field study, and themes that emerged during fieldwork. The codes generated from the data developed through the reading of the material. As I had both field notes and

transcriptions from individual and group interviews, it was specific actions, events, meanings, norms, relations, physical surroundings, artifacts, symbols, conversations, and reflective codes, such as my own role in the process, that formed the data material. Through continuous comparison of examples from the data to find differences and similarities, new codes emerged.

Afterward I applied a more focused coding, and through this process, specific categories emerged.

Three overall categories were derived from the process: (1) *cultural messages about employees' perception and action* (about, e.g., busyness, performance, stress, social support), (2) *social negotiations of the cultural messages* (guiding suggestions of how to appraise and cope with the working environment, such as social representations), and (3) *the actual appraisal and coping behavior*.

The *cultural messages* were subcategorized into semiotic and material resources and barriers: *physical surroundings, work organization/characteristics, social interaction, and cultural discourses*. These categories are depicted in the matrix below.

Semiotic tools	
Societal discourses	Societal discourses
Local discourses	Local discourses
Management practices	Management practices
Organizational characteristics	Organizational characteristics
The conduct of others	The conduct of others
Others opinions	Others opinions
Resources	Barriers
Work organization/characteristics	Work organization/characteristics
Artefacts	Artefacts
Physical surroundings	Physical surroundings
Technology	Technology
Semiotic tools	

Figure 2. Matrix of the resources and barriers for appraisal and coping

The *social negotiations of the cultural messages* were subcategorized into a variety of social representations and a variety of *positions* held by the participants in the social negotiations. Furthermore, this category also addressed how the different semiotic and material components became both resources for and barriers to different coping practices.

The *actual appraisal and coping practice* was subcategorized into four practices depicted for coping in the matrix below.

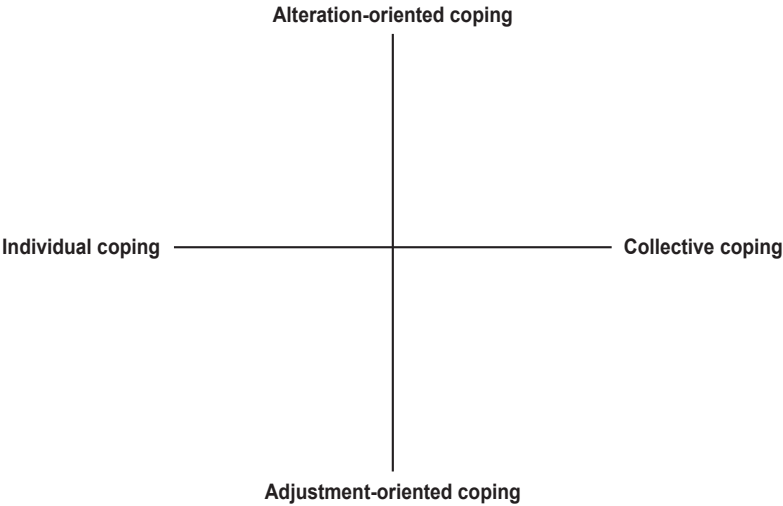


Figure 3. Matrix of work related coping practices

After the more focused coding, I read the individual and group interviews interthematically as well as intrathematically. In the interthematic analysis, I compared interview themes and thus voices found within one interview theme with voices found within other interview themes. This approach revealed how the themes were related. For example, it revealed how the coping practice of working more extensively was mediated by the working environment, the professional culture, and the physical surroundings, which are further described in chapter 8.

In the intrathematic analysis, I analyzed variations within each thematic category. Here I compared the voices of the participants within one theme. This provided knowledge of different discursive strategies and how they were related to the different groups within the organization. For example, the different conceptions of busyness and stress between the groups became apparent. This is also further described in chapter 8.

Throughout the analysis I applied hermeneutic, pragmatic, and discursive analysis strategies, which are in line with my theoretical and epistemological approach.

As this description reflects, both inductive and deductive approaches are used, but more descriptive of the process from the beginning of the fieldwork and to the end of analysis is the use of *abductive reasoning* (Shank, 2006). Shank has explained how ethnographic research uses abductive reasoning because ethnographic data are more subtle and open phenomena. Abductive reasoning refers to following hunches, reading signs, playing with possible explanations that draw on things we know, and looking for clearer signs or clues. It is about gathering evidence toward a pattern but not in a linear way. This way of reasoning was used only in the analysis of the fieldwork, and when combining the results from the different methods, a more linear approach was adopted.

CHAPTER 7: PAPER I

REWRITING STRESS: TOWARD A CULTURAL PSYCHOLOGY OF COLLECTIVE STRESS AT WORK¹

ABSTRACT

The aim of this article is to contribute theoretically to the development of a cultural psychological, i.e. dialogical and distributed, understanding of stress. First we challenge established cognitivist notions of stress and discuss philosophical and epistemological implications tied to this perspective. Then we introduce a dialogical, distributed and situated understanding of stress and rewrite central concepts from cognitive stress research such as appraisal and coping. This new orientation is related to a recent metaphysics of mind, according to which mental states and processes are embedded in and possibly even extend into the environment. This philosophical position is known as externalism and holds that the mind needs to be understood not just by intrinsic mental features such as physiological or cognitive processes, but also in light of what either occurs or exists outside the organism. With reference to empirical examples, we argue that this framework can contribute to a new understanding of the situated and distributed nature of stress.

Key words: Stress, externalism, appraisal, coping, dialogue, distributed

INTRODUCTION

“I’m so glad working with Bryan, when he like sits and looks very relaxed when he works on an assignment, where I think the rest of the organization... and when you look at your mailbox – they were all really in a spin so in the end I had to say to him: ‘Bryan you sit and look so relaxed. Should I also be as relaxed and think the others are in a spin or how shall I interpret this?’’. Because actually I let myself be carried away by the atmosphere which I had experienced in the mailbox, where I began to think – wauw we are so busy and then Bryan sits there like so leaned back and relaxed”.

¹ Accepted pending minor revisions in *Culture & Psychology*

Intuitively, people tend to think in individualistic terms about the stress that allegedly permeates modern life, not least work life, where we often hear about a ‘stress epidemic’ (Wainwright & Calnan, 2002). Stress is something that is inside us as isolated individuals, caused by different neuro-endocrinological perturbations. Although stress can be triggered by specific stressors in the environment, or by inadequate coping strategies, stress as a phenomenon is located beneath the skin and even inside the skull. From this common point of view, stress is understood as both a mental phenomenon and as an embodied phenomenon. But a perspective on stress as something embedded in or even extended into the physical and social environment has not been prevalent neither in the research on stress nor in lay discussions.

The example above is from an interview sequence from the first author’s study at a large biotech company in Denmark where she conducted fieldwork in a period of 5 months in two different departments which comprised researchers, lab technicians and technicians. 12 individual interviews and 8 group interviews were conducted and the interviews and observations form the basis for this article. The interview sequence illustrates the social embeddedness of an appraisal process. The woman in the interview exemplifies how two opposing ways of judging a work situation are derived from her interaction with her colleagues and make her confused concerning how she should interpret the situation. This interview sequence, and many others like it, made us interested in how appraisal processes related to stress can be shaped in and through social interaction. We have come to think that appraising one’s potentially stressful situations and considering how to cope, is not just a process occurring inside the individual, but often takes place in dialogue with others (who can be physically present or imagined others). But also the world of material objects is important: The physical surroundings with its artefacts can be conceived as part of a coping process inherent in a stress response, which we will address later in the article. To fully understand the complex phenomenon of stress, we will argue that we need to take the social and physical embeddedness into account. The empirical analyses developed from the research project will be published elsewhere, so, in the context of this paper, the examples included merely serve as indicators of how we believe that stress should be approached as a dialogical, distributed, and situated phenomenon.

INDIVIDUALISM AND OBJECTIVISM AS APPROACHES IN CONTEMPORARY STRESS RESEARCH

Increasingly, contemporary stress research is polarized around two seemingly irreconcilable schools of thought. There is on one hand the individualistic approach represented by cognitive psychology, which focuses on the individual’s ability to cope with stressful events (Lazarus & Folkman, 1984). On the other hand, there is the environmental approach such as work-environmental studies, which focuses on identifying the specific risk factors in the environment that are meant to explain

the development of stress (Karasek, 1979; Karasek & Theorell, 1990; Siegrist, 1996). While the cognitive understanding of stress concentrates on the individuals' interpretation of the work environment as a mediating factor between the individual and the context, the work-environment studies operate with a more direct causality between work-environment characteristics and the development of stress (Siegrist, 2000; Wainwright & Calnan, 2002). The different theoretical and epistemological frameworks represented in the two schools of thought enhance the possibility of a reductionism either in the direction of individualism or that of objectivism. The work-environmental approach reduces the individual to a passive medium of extrinsic forces and, in our view (and borrowing from Harré), implicitly *'deletes the active, interpretative person from the ontology of psychology'* (Harré, 2002, p. 131). The cognitive approach on the other hand stays enclosed within a subjective, almost Cartesian realm, and does not encompass the social and cultural praxis in which the individual is embedded, as part of the understanding of how stress develops.

Attempts have been made to reconcile these poles through different models such as the balance-model, where work stress is understood as a result of an imbalance between work demands and the resources of the employee (Siegrist et al., 2004), and later through more coping-oriented work-environment models (Bakker & Demerouti, 2007). But these models still operate with an alleged gap between the individual and the context and thereby still reduce the world to rational individual subjects on the one hand and verifiable objects on the other. And, as Falmagne has stated, once positions are construed on a metatheoretical level, they are also easily construed as 'incompatible, bounded, and mutually exclusionary' (Falmagne, 2009, p. 796).

This polarization reflects the deep and perennial metaphysical chasm between the subjective and the objective, mind and matter, of Western philosophy. Several attempts to reconcile the positions have been made within philosophy of mind, but it has been quite a conceptual puzzle how the two interact. As part of a Cartesian heritage in western thinking, a long philosophical tradition has favored the isolated mind and ignored the importance of embodiment and situation (Gallagher, 2009). Philosophers such as Dewey, Heidegger, and Merleau-Ponty have articulated approaches to cognition, which recognize its situated nature, and researchers within cognitive psychology have more recently begun to emphasize the situated and distributed character of cognition (Clark, 2009; Hutchins, 1995). But the situated, distributed, and cultural understanding of cognition has not yet been employed in stress research, which is needed if we want to capture the complexity in how stress develops in our lives in general and at work specifically.

In this article we begin to develop a distributed and cultural understanding of stress. We propose that stress can favourably be understood as extending into the social and physical environments. The individual is thus not 'a container of stress', but rather one part of a dynamic system, which includes social processes and the material world. This perspective is important in stress research for two main reasons: First because

it is theoretically satisfactory (as we hope to demonstrate), and second because it goes against the ways that current treatments of stress are dominated by different versions of individual-focused cognitive therapy. A problem often emerges when employees come to interpret work environmental problems as caused by themselves as individuals, e.g. by failed coping strategies or personality features, instead of facing work environmental problems as a common problem at the work place.

THE COGNITIVE UNDERSTANDING OF STRESS AND ITS PROBLEMS

Within the cognitive tradition, Lazarus (1922-2002) created a widely used theory of stress, which illustrates the role of psychological factors in mediating the person-environment transaction. Stress is viewed as a relationship between the person and the environment that is appraised as exceeding the persons' resources for coping (Lazarus & Folkman, 1984). The concept of appraisal designates a two-stage transactional process in which the magnitude of a threat is evaluated in comparison with an evaluation of the individual's ability to cope with it. The first step in the process is primary appraisal of a potential stressor, which can have three outcomes: it may be appraised as irrelevant, beneficial, or stressful to the individual. Whether a potential stressor triggers the stress response depends upon the individual's secondary appraisal of her ability to cope with the potential stressor. A positive appraisal of the capacity to cope with a potential stressor reduces the experience of stress (Lazarus & Folkman, 1984). There are thus two processes, which serve as central mediators within the person-environment transaction – cognitive appraisal and coping.

Lazarus' cognitive understanding of stress helps throw light on the processes involved in the *agency* of the individual where the individual is not seen as a passive patient of problematic work conditions. Rather, the concept of appraisal highlights the role of individual differences concerning the interpretation of environments that are otherwise 'objectively' equal for different individuals. The same can be said about the concept of coping, which emphasizes the active role played by the individual in trying to change the situation or the appraisal of it.

Despite its sophisticated and dynamical aspects, Lazarus' theory fails, however, regarding the cultural and social dimensions of the stress response and is thereby unable to account for how to integrate the individual and environmental dimensions. It acknowledges to a certain extent the importance of the environment in understanding the development of stress through its emphasis on a transaction between the individual and the environment, but, in line with the cognitive tradition, it also expounds an understanding of cognition as the individual's property, as something that is "in the head", and thereby concludes that appraisal and coping are individual processes as such. The problem of the polarized positions therefore persists, if we continue to consider

appraisal and coping as something that is in the end only shaped by the individual (Wainwright & Calnan, 2002). In a draft written a week before his death, however, Lazarus stressed the fact that he, when he elaborated his appraisal and coping theory, did not acknowledge the impact of the specific social context and the interpersonal interactions (Lazarus, 2006). Lazarus tried in the draft to develop a tentative model that included these elements but we find that it is more meaningful to develop a theoretical perspective, which, in its philosophical and epistemological foundation, has an understanding of the individual and her mental processes as embedded in a physical and social environment at the outset. We need research that goes beyond the individual and conceptualizes appraisal and coping in a new manner and reconciles the alleged dichotomy between the individual and the context. Not in a manner where we insert a not further described “interaction” between the two, but in a manner where both positions are inherent in the philosophical and theoretical framework.

THE EXTENDED MIND IN STRESS

A new perspective on stress as embedded in the environment calls for a new metaphysics of mind. This philosophical position is emerging today and is known as externalism and holds that the mind needs to be understood in light of what exists outside the subject and not just by intrinsic features such as physiological or cognitive processes. This position avoids the need to build conceptual bridges between mind and matter and reconciles the oppositions in the stress research that were described earlier.

Clark and Chalmers (1998) introduced externalism and the concept of the extended mind in opposition to the dominating internalist conceptions, and thereby tried to move beyond the standard Cartesian idea that cognition is something that happens “in the head”. Their notion of the extended mind is a version of “active externalism”, which states that significant parts of what constitutes mental functioning exist outside the skulls of individuals (there is also a version of externalism that refers to semantics, associated with Saul Kripke and Hilary Putnam (1973), which posits that “*meanings are not in the head*”, because meanings are conceived as tied to referents in the world). Clark and Chalmers introduce the *parity principle*, which states that: “*If, as we confront some task, a part of the world functions as a process which, were it done in the head, we would have no hesitation in recognizing as part of the cognitive process, then that part of the world is part of the cognitive process*” (Clark & Chalmers, 1998, p. 11). To illustrate this principle they use the now famous example of the rotation of a shape. It can be done in three ways: 1) by forming a mental image of the shape and mentally rotate it to see if it will fit. 2) By rotating the image on a computer screen by way of the computer’s keyboard. 3) By using a neural implant, which is equivalent to the mechanisms/hardware in the computer, allowing people to rotate the images and even at a faster speed. The logic behind this example is that all three operations are psychological, i.e. cognitive, operations, and the difference between them lies solely in

the *location* of the operation, so even if 2) and 3) are external versions of the cognitive process, they still count fully as cognitive operations for Clark and Chalmers.

Since Clark and Chalmers (1998), the view of the mind as not just *embodied*, but also *embedded* in a world and *extended* into this world has generated much interest and fascinating research programs (Robbins & Aydede, 2009). However, very few researchers have looked at mental health issues such as stress in this light. Our question then becomes: Is it possible to understand stress from an extended mind perspective? Can appraisal and coping, as psychological (indeed, cognitive) processes be understood as extending into the physical environment? This seems possible, for just as human beings may perform the rotation of a shape using different (internal and external) media, they can in similar ways mentally imagine the magnitude of assignments at work and appraise it as being threatening towards ones wellbeing. Or they can consider the magnitude of assignments at work by way of an electronic calendar on the computer screen and appraise it as being threatening towards ones wellbeing. And they can assess the magnitude of assignments at work by way of the amount of physically placed assignments on the table and appraise it as being threatening towards ones wellbeing. One can even imagine an appraisal of the magnitude of assignments at work being extended into the physical environment through the architecture, for example. Imagine a work place with multi-person offices and with walls of glass. People can see how busy their colleagues are, the assignments on their tables and appraise their workplace as busy and threatening towards one's wellbeing.

Kono (2013) has recently pointed out that in spite of its promises, the extended mind thesis developed in the tradition of Clark and Chalmers nonetheless reflects an understanding of the surroundings as static, and the technologies inherent in the surroundings are only conceived as resources or constraints on human action. He points to the need for a theoretical framework that is more dynamic and which does not just treat the surroundings as a mere extension of the cognitive processes. Also Gallagher (2013) criticizes Clark and Chalmers for having an overly functionalistic understanding of cognitive processes because of their limited definition of cognition as simply encompassing belief, desire, and other propositional attitudes. From his embodied-embedded perspective, Gallagher argues that cognition is more than that, i.e., also constituted by enactive cognitive processes and activities such as problem solving, interpreting, judging etc. Gallagher elaborates on the theme of cognitive extension by extending the mind to include processes and *social practices* that occur within cultural institutions, which he calls 'mental institutions'. Mental institutions are defined as institutions that help us to accomplish certain cognitive processes or even constitute those processes and thereby function as an example of how cognition can be socially extended. As examples of mental institutions he refers to legal systems, educational systems and cultural institutions and claims that 'these socially established institutions sometimes constitute, sometimes facilitate and sometimes impede but in each case enable and shape our cognitive interactions with other people' (Gallagher, 2013, p.7). He defines a mental institution more precisely as an institution which:

“1) includes cognitive practices that are produced in specific times and places and 2) is activated in ways that extend our cognitive processes when we engage with them (that is, when we interact with or are coupled to these systems in the right way” (p. 6).

With this broad definition of mental institutions, we might include not only formalized institutions with explicit externalized rules and systems among them, but also specific subcultures or social practices inherent in organizations and institutions. Such social practices do not have to be embedded in systems of externalized rules, schemas etc. in a physical sense to function as socially extending, but also cultural and social signs in the environment mediated through language, discourses and distributed through the social interaction between individuals can be socially extending (Brinkmann, 2011).

We agree with the critics that the extended mind thesis needs further elaboration to include a more dynamical understanding of the interaction between the individual and the environment in the sense that the environment co-constructs the individual and the individual co-constructs the environment. The socially extended mind thesis has a more dynamical concept of the environment than cognitivist approaches, but seems to lack a concept of social practice that is detached from a formalized system and which entails a description of social interaction with opposition or conflict among a subject and its surroundings (Kono, 2013). What we need is a theoretical framework that encompasses both the physical and social embeddedness of an individual as well as a dynamical understanding of the interaction between the individual and the environment and a broader understanding of social practice.

We believe that a properly conceived cultural psychology may accomplish exactly that and exemplifies how mental life can be extended physically as well as socially through the mediated, distributed, and dialogical nature of the human mind. Valsiner is an exponent of an integrated version of cultural psychology as he tries to integrate a personal element with culture and thus understands culture as partly shared and partly personal. Since individuals contribute a personal element to culture, they ‘*co-construct*’ culture and culture is understood as a part of persons’ psychological systems and plays a functional role within that system (Valsiner, 2007). Hence the individual and culture dynamically co-construct each other. Culture is seen, not as a variable or a cause of human conduct, but rather as a set of resources (semiotic as well as material) that human beings employ as mediators when living their lives together. The individual adds a personal element to culture by transforming the cultural messages in personally novel forms which then gets externalized to the surroundings.

From this point of view the meaning-making process and hence distinct appraisals and ways of coping are distributed (Hutchins, 1995; Scribner, 1984) between persons through the social use of semiotic signs and material tools. Dialogism, which is one direction within cultural psychology, focuses specifically on the interrelatedness of thinking and communication and exemplifies how dialogue is a case of social

use of semiotic signs and material tools. This direction operates with a broadened concept of dialogue as not just between two people as we know it, but refers to *'any kind of human sense making, semiotic practice, action, interaction, thinking or communication'* (Linell, 2009, p. 5). In the next sections, we look first at the role of artefacts and the physical embeddedness of stress, before moving on to analysing its social embeddedness. We will throughout the analysis invoke the concept of distributed appraisal and coping as a way of emphasizing the situated, dialogical, distributed and, indeed, collective nature of stress.

Through the analysis of the physical and social embeddedness of stress, we take our point of departure in the earlier described stage theory of stress formulated by Lazarus. We argue that Lazarus' theory does not grasp the dynamicity of stress, but nonetheless can be used as an analytical tool to expound the social and physical embeddedness of the different stages of stress. Thus, in short, our goal is to 'socialize' and 'externalise' the Lazarusian theory.

STRESS AS PHYSICALLY EMBEDDED

During the first author's field study, she noticed the importance of the physical environment in shaping the appraisal and coping process and how this often seemed to be mediated through technology, physical materials, and physical surroundings such as the architecture within the organization. The following observation sequence illustrates the interaction with technology as mediating specific appraisals of the magnitude of work assignments:

(Fields notes extract)

"Paul looks at his electronic calendar on the computer screen and says shortly after: 'I was just feeling really good as I looked at next week, but then I saw that it was 2012 I was looking at (and not 2011, which was the year the observations were conducted). When I look at next week I just get hit hard. I get all sweaty'".

This example shows the switch in appraisal of the magnitude of the assignments based on his interaction with the electronic calendar on his computer. Building on Clark and Chalmers' parity principle introduced above, it is rather obvious that the computer calendar functions as extended memory that organizes Paul's tasks sequentially in time, and it is interesting to notice how he describes how this technology has concrete implications for his physical state. The appraisal process is not just mediated through an individual's use of a material tool, but can also be distributed across members of a social group through the interaction with the tools. The organization in which

the fieldwork was conducted had implemented lean² as a way of optimizing the production in the organization. One of the elements in the implementation of lean was that they allocated all the orders of the week to different days, using a blackboard, to avoid a piling up of orders. A green note was placed if an order was one week before deadline. One of the employees evaluated the implementation saying: *'Earlier I got stressed when I saw orders pile up on a single day. Now they are allocated on several days and I get calm and I feel like I get an overview, when I look at the blackboard'*. Many of the employees highlighted the visual aspect of the implementation as central; that they visually could see the work of the week congregated on the blackboard gave them calmness. Here their appraisal of the magnitude of assignments seems to be mediated through the material tool or physical artefact – the blackboard – and distributed across the group of employees, given the social use of the artefact. The employee stated further: *'We actually talk less about busyness now. You can see it is shared and placed there (pointing at the blackboard).'*

The example illustrates how physical artefacts in the environment through their distinctive nature can mediate and distribute distinctive appraisals of the work environment. Not only can the appraisals of the work environment be mediated through the physical artefacts, but the coping process can also be mediated through a physical artefact. In an interview one of the participants said:

".. I sit here and where I maybe ought to go over on the other side of the hall and joke or chitchat a bit. But I don't feel I have time to do any of that. And it affects me emotionally, that I don't have time. That's why I have that Havana club rum placed there. It is my own little token for once in a while to remember that I also must have time to do fun stuff".

Here the bottle of Havana Club rum functions as a sign. The bottle mediates a specific coping strategy, which in this case is to use humour as a way of distancing oneself from how busy the work is.

The critique of the extended mind thesis mentioned above, as reflecting an understanding of the surroundings as static and the technologies inherent in the surroundings as only resources or constraints of human action, does not apply to the theoretical framework applied here. As the cultural psychological perspective focuses on the dynamic co-constructing nature of the person-environment relation, it implies that through the transactions, the environment gets transformed, and so do the semiotic and material tools inherent in the surroundings.

² Lean means 'slim' or 'trim' and points to a set of principles aimed at increasing the productivity by efficiency improvements (Drew et al., 2004).

STRESS AS SOCIALLY EMBEDDED

In this section we will address the social embeddedness of stress through a focus on semiotic tools, which mediate the appraisal and coping process. Semiotic tools involve other people's experiences and interpretations of the world and allow communication between members of social groups through the exchange of signs. According to dialogism, when a human being constructs meaning in a relation with the world, it is always through a field of opposites. It is the opposition between the meaning and its opposites that is the basis for further change and explains how people are transformed through the social interaction. As Valsiner states, it is not possible to think of e.g. non-red (a negative concept) without having the notion of red (a positive concept) (Valsiner, 2007). The person is placed between what is known (e.g. non-red), which is the subjective meanings based on the person's life experiences up to now, and what is not yet known personally, which is a semi-open field of possible new meanings (e.g. red). The semi-open field of possible new meanings is socially suggested by others through their use of semiotic devices.

In relation to stress, the appraisal of a situation at work being 'I cannot manage this workload' is an example of a negative concept ('non-red'), based on the person's life experiences up to now and this appraisal is opposed to a semi-open field of possible new meanings, which is suggested by others such as: *'I can manage this workload'*. An example from the field study exemplifies this more thoroughly: "Sarah says loudly in the group of colleagues: *'I get all stressed when I can't get the assignments finished on time'*. Susan replies: *'It is just work. It is enzymes we are working with – not people and a question of life or death'*". Susan exemplifies the semi-open field of possible new meanings and uses a semiotic organizer implying *don't take work too seriously*. The way the dialogical self is conceived as social is that the dialogue with others (heterodialogue) becomes a part of the person's internal dialogue (autodialogue) in the sense that others occupy positions in the multivoiced self, the so-called multiple I-positions. Each I-position creates a 'voice' which relates to the other 'voices' of other I-positions (Valsiner, 2007). Within this narratively structured self, dominance relations are established. In the case of Sarah, through an interpersonal dialogue, a particular direction of how to feel is suggested: That she should not feel stressed because work should not be taken too seriously. As a result, Susan's suggested value becomes a part of Sarah's internal dialogue as well as the other voices in the group. But what seems to be the case is that the voice of Susan becomes dominant and seems to form a *social representation* understood as a meaning complex that guide particular thought, feeling, and acting processes (Valsiner, 2003).

(extract from reflections on field notes)

"The following days in the group I noticed that they often reminded each other that their work wasn't a matter of life and death and in a following group interview they stated that they were good at calming

each other down by telling each other that it was “just work”’.

From a cultural-psychological perspective, what happens in this process is that through communication and social action, the social representation gets distributed among the members of the group. This described process reflects the tension between the personal culture and the social world within which the person is embedded and describes how an appraisal process also is a social process as well as an intra-psychological process. Furthermore, the coping process also seems to be distributed among the members of the group. In a group interview, they stated how important it was for the newly appointed to learn to address the management, if they could not keep up with the pace of work:

- Interviewer: Is it something you pass on to the newly appointed?*
Hugh: Yes, we are good at passing it on.
Simon: Then they just have to learn to comply with it.
Hugh: It is important, because if you do like Marian explained: ‘I can just do that, I can just squeeze it in tomorrow morning’ etc., then it is going to be a mess, because it will not be removed from the system, and then the researchers think the next time: ‘Yes, it works fine, why can’t you make it? You could the last time’.

This, we find, is an example of how coping can be seen as socially distributed. On the basis of our argument so far, we believe that cognition and thereby the appraisal and coping process is dialogical in nature and is semiotically mediated through the use of language in social interaction. In this sense we can also talk about the self being distributed or extended to others and to the social and cultural groups and mental institutions (Gallagher, 2013) to which one belongs. As Linell underlines, distributed cognition is typically understood as distributed along the extended loop of body-brain systems, artefacts, semiotic resources, and the material world, but to this list we should add “the other and her actions and utterances” (Linell, 2009, p. 146).

REWRITING APPRAISAL AND COPING: SOCIALIZING LAZARUS

In light of the theoretical and philosophical framework articulated here, we will now revisit the existing Lazarusian theory of appraisal and coping and rewrite it in light of our reflections on the distributed and mediated nature of these concepts. In the understanding of the individual vs. environment transaction, Lazarus sees the single individual as someone who acts, thinks, speaks, and explores the world, and, as Linell emphasizes in his critique of monologist theories, the ego is dominant and others in the social environment are around only as an ‘environment’ for the ego (Linell,

2009). Lazarus' definition of stress thereby only entails an individual vs. environment encounter without emphasizing the social aspect of stress. A cultural psychological perspective, in contrast, emphasizes that persons are social beings interdependent with others. The other gets a central place in this theory accentuating that the other is a central part of the individuals' psychological constitution through the manifestation of different I-positions in the multivoiced self. One move in our attempt to "socialize Lazarus" consists of developing the ideas of appraisal and coping in a social direction. What Lazarus called primary appraisal (is something irrelevant, beneficial, or stressful?) already has an unacknowledged social dimension in the fact that that such appraisal is unavoidably relative to social norms. What it means that something is, say, beneficial or stressful, is, of course, relative to the individual's capabilities, but also to a kind of normativity that is sociocultural. Similarly in relation to secondary appraisal (if it is stressful – can I then cope?), for here there are social norms about what counts as adequate coping. Coping – like other psychological processes (Brinkmann, 2011) – is a normative process with the individual implicitly or explicitly comparing herself to others. One must know what it means to cope well, relative to social norms, in order to be able to assess whether one can cope. If so, it means that the social realm, so to speak, is built into the appraisal and coping process at its very foundation. Considering whether one can cope or not implies entering into dialogical relations with real or imagined others with whom one can compare and deliberate about what coping well means (compare the question: 'Can you play football?' If asked by Lionel Messi, one is likely to answer 'No, not really', but if asked by one's four year-old child, a correct answer might be 'Yes, I can'). Capabilities, including coping, are relative to social positionings, but this is ignored by the individualist framework developed by Lazarus.

CONCLUSIONS

In this article we have tentatively invoked the concept of *distributed appraisal and coping* as a way of emphasizing the situated, dialogical, distributed and, indeed, collective nature of stress. We argued that traditional approaches to stress and coping are linked to an individualistic epistemological and theoretical framework, and we have found it necessary to accentuate the different philosophical and metatheoretical foundations by introducing a new concept. We would like to emphasize that our talk of collective and distributed stress and coping are meant as tentative concepts, as our aim is to examine what kind of knowledge about coping we can gain by introducing this perspective.

The concept of distributed coping, we believe, can bring us new knowledge about the *landscape of appraisal and coping*. By using this landscape analogy we emphasize that concrete contexts invite employees to appraise the situations in a certain way and afford using certain coping strategies rather than others. This is not just a matter of isolated individuals, but related to the ecology, the landscape of material artefacts,

and social relations. Just as the human cultivation of the landscape as such invites us to use certain paths and limit the use of others, so does our structuring of our working environment offer us certain coping strategies and make others less obvious. The structuring of our working environment both entails how we organize and shape our physical surroundings as well as how our human activities are organized such as the work organization, our communication and social interaction, and the discourses and cultural characteristics within the working environment. While the traditional concept of coping made us ask the question: ‘*How do you cope at work?*’ the concept of distributed coping will turn the question around to that of: ‘*Which coping strategies does the working environment offer you?*’

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REFERENCES

- Bakker, A.B. & Demerouti, E. (2007). The job demands-resources model: State of the Art. *Journal of Managerial Psychology*, 22, 309-28.
- Brinkmann, S. (2011). Towards an expansive hybrid psychology: Integrating theories of the mediated mind. *Integrative Psychological and Behavioral Science*, 45(1), 1-20.
- Clark, A. & Chalmers, D. (1998). The extended mind. *Analysis* 58(1), 7-19.
- Clark, A. (2008). *Supersizing the Mind. Embodiment, Action, and Cognitive Extension*. Oxford, UK: Oxford University Press.
- Clark, A. (2009). How to situate Cognition: Letting Nature Take Its Course. In P. Robbins & M. Aydede (Eds.), *The cambridge handbook of situated cognition*, (pp. 55-77). Cambridge: Cambridge University Press.
- Drew, D., McCallum, B., Roggenhofer, S. (2004). *Journey to lean. Making operational change stick*. New York: Palgrave Macmillan.

Falmagne, R.J. (2009). Subverting theoretical dualisms. Discourse and mentalism. *Theory & Psychology* 19 (6), 795-815.

Gallagher, S. (2013). The socially extended mind. *Cognitive Systems Research* 25-26, 4-12.

Gallagher, S. (2009). Philosophical Antecedents of Situated Cognition. In P. Robbins & M. Aydede (Eds.), *The cambridge handbook of situated cognition*, (pp. 35-51). Cambridge: Cambridge University Press.

Harré, R. (2002). *Cognitive Science. A philosophical introduction*. London, UK: Sage Publications.

Hutchins, E. (1995). *Cognition in the wild*. Cambridge: Bradford Books.

Karasek, R.A. (1979). Job demands, job control and mental strain: Implications for job redesign. *Administrative science quarterly*, 24, 285-308.

Karasek R. A., & Theorell, T. (1990). *Healthy work: Stress, productivity and the reconstruction of working life*. New York, NY: Basic.

Kono, T. (2013). Extended Mind and After: Socially Extended Mind and Actor-Network. *Integrative Psychological and Behavioral Science*, august, 2013 (online first articles).

Lazarus, R. & Folkman, S. (1984). *Stress, Appraisal and Coping*. New York, NY: Springer.

Lazarus, R.S. (2006). Emotions and interpersonal relationships: Toward a person-centered conceptualization of emotions and coping. *Journal of Personality* 74(1), 9-46.

Linell, P. (2009). *Rethinking Language, mind and world dialogically. Interactional and contextual theories of human sense-making*. A volume in cultural psychology: Constructing human development. Charlotte, NC: Information age publishing.

Putnam, H. (1973). Meaning and reference. *The Journal of Philosophy* 70(19), 699-711.

Robbins, P. & Aydede, M. (Eds). (2009). *The Cambridge Handbook of Situated Cognition*. Cambridge: Cambridge University Press.

Scribner, S. (1984). Studying working intelligence. In B. Rogoff & J. Lave (Eds.), *Everyday cognition: Its development in social context* (pp. 9-40). Cambridge, MA: Harvard University Press.

Siegrist, J. (1996). Adverse health effects of high effort/low reward conditions. *Journal of Occupational Psychology*, 1, 27-41.

Siegrist, J. (2000). Work stress and beyond. *European Journal of Public Health*, 10(3), 223-4.

Siegrist, J., Starke, D., Chandola, T., Godin, I., Marmot, M., Niedhammer, I. & Peter, R. (2004). The measurement of effort-reward imbalance at work: European comparisons. *Social Science and Medicine*, 58 (8), 1463-73.

Valsiner, J. (2007). *Culture in minds and societies*. Foundations of Cultural Psychology. Los Angeles: Sage Publications.

Valsiner, J. (2003). Beyond Social Representations: A Theory of Enablement. *Papers on Social Representations*, 12, 7.1-7.16.

Wainwright, D. & Calnan, M. (2002). *Work stress. The making of a modern epidemic*. Berkshire, UK: Open University Press.

CHAPTER 8: PAPER II

WHICH COPING STRATEGIES DOES THE WORKING ENVIRONMENT OFFER YOU? A FIELD STUDY OF THE DISTRIBUTED NATURE OF STRESS³

Tanja Kirkegaard & Svend Brinkmann

ABSTRACT.

This study explores work stress as a cultural phenomenon, distributed socially and materially, by introducing the metaphor of a landscape of appraisal and coping. By using this landscape analogy it is emphasized that concrete contexts invite employees to appraise the situations at work in a certain way and afford using certain coping strategies rather than others.

This study uses data based on a field study in one department of a multinational company and demonstrates how definitions of stress, appraisals of the working environment and coping strategies varies across professional groups. Furthermore, the study indicates that these different appraisal and coping practices are deeply embedded in the concrete context in the sense that the different aspects of the working environment such as the physical surroundings, the work organization, the social interactions and cultural characteristics each and combined invite the employees to engage in distinct appraisals and coping practices and limit the use of others.

By invoking the landscape metaphor, we aim to expand our understanding of stress as something more than a transaction between the individual and a specific stressful situation at work.

Key words: Stress, distributed, culture, coping, appraisal

³ *Submitted in Nordic Psychology*

INTRODUCTION

The purpose of this paper is to empirically explore work stress as a cultural phenomenon, distributed socially and materially, by introducing the metaphor of a *landscape of appraisal and coping*. With a theoretical point of departure in cultural psychology (Valsiner, 2007; Valsiner & Van der Veer, 2000) and the theory of distributed cognition (Hutchins, 1995), the related concepts of *distributed appraisal and coping* are proposed as concepts that comprise the embeddedness of the individual in a specific socio-material context (Kirkegaard & Brinkmann, in press). The landscape metaphor is meant to indicate that the social use of the semiotic (language, communication) and material (artefacts, tools, physical surroundings) resources within the working environment mediate distinct ways of appraising and coping with stress. The concept emphasizes that different aspects of the working environment offer or invite the employees to engage in certain ways of appraising and coping with the working conditions and limit the use of others.

The distributed approach to appraisal and coping supplement the contemporary line of stress research, which stems from the work of Richard Lazarus. Lazarus introduced the concepts of appraisal and coping as a central part of the stress process, which he defined as a transactional process in which the magnitude of a threat is evaluated (appraised) in comparison with an appraisal of the individuals' ability to cope with it (Lazarus & Folkman, 1984).

Even though Lazarus emphasized the transactional nature of the stress process, the vast majority of the work following this theory has directed attention to the impact of individual factors on the appraisal and coping process such as for example exploring the influence of personality features on the coping process (Wainwright and Calnan, 2002). Folkman has also emphasized that phenomena such as personal control, agency and direct action are central to most theories of coping, reflecting an emphasis on the individual (Folkman & Moskowitz, 2004). The individualistic perspective on appraisal and coping has been criticized by several researchers for isolating the appraisal and coping process from the social context (Länsisalmi, Peiro & Kivimäki, 2000; Mickelson et al., 2001; Hobfoll, 2001). The only way the context has been given consideration within the coping research is through the concept of situational coping (Moos & Holahan, 2003; Pienaar, 2008), where emphasis is put on how a specific stressor influences the way individuals choose to cope. This approach has been criticized of reducing the context to a specific stressor and does not take other parts of the context into consideration (Carver & Connor-Smith, 2010). According to Hobfoll (2001) the traditional research within appraisal and coping has interpreted appraisal and coping processes as ideographic and characteristic of the individual, and argues that we need to ask the question of why people make certain appraisals and cope in a certain way and to the extent to which the appraisals and choice of coping strategies are cultural scripted.

NEW PERSPECTIVES ON STRESS AND COPING

Studies of how cultural characteristics within an organization influence the appraisal and coping process are limited. However, Lämsä et al. (2000) have conducted a qualitative study, which found that similar stressors across different divisions within an organization were shaped differently, and the respective coping strategies also differed from one subcultural context to another. The differences emerged due to different cultural narratives within the departmental subcultures, which produced specific ways of coping with the stressors. Other studies have looked further into professional cultures and have found that knowledge workers primarily used individual coping strategies in order to cope with the demands at work due to cultural and work organizational characteristics (Buch & Andersen, 2013) and an Australian field study on hospice nurses concludes that they primarily used collective coping strategies due to a shared value system (McNamara et al., 1995). A study of Astvik & Melin (2013) focuses primarily on the work organization and demonstrates how the organization of work seems to influence the way individuals cope with situations they appraise as stressful in the sense that the organization of work enables certain ways of coping and limit the use of others. This study showed that e.g. the collective coping strategies were used more frequently when the work was organized in teams; they shared mutual responsibility for the working process and when communication and cooperation were of vital importance for their work (Astvik & Melin, 2013). Together, these studies indicate that the appraisal and coping process cannot be separated from its socio-cultural context, and this perspective has not yet been adequately explored in psychological research (Wainwright & Calnan, 2002; Folkman & Moskowitz, 2004). These studies each point to different aspects of the work environment that shapes specific ways of coping to our knowledge no study has yet explored the variety of different aspects of the ecological surroundings which shape individuals appraisals and coping practices within an organizational context.

In order to explore how the appraisal and coping process is embedded in the working context, the metaphor of 'landscape' is proposed in this paper as a way to emphasize how the specific context enables specific ways of appraising and coping with the working conditions.

THE LANDSCAPE OF APPRAISAL AND COPING

This metaphor is borrowed from the literature on workplace learning, where several researchers have operated with the landscape metaphor (Nielsen & Kvale, 2003; Noyes, 2004; Clandinin & Connelly, 1995), emphasizing the situatedness of learning and the resources and barriers for learning, which exist within the learning environment. In this article, the landscape metaphor is used to focus on the interrelatedness of different aspects of the working environment and how they separately or together can function as resources and barriers for certain appraisal and coping strategies within

the work place. The metaphor also reflects the idea that the pathways are offered to the employees and thereby that different aspects of the working environment invite the employees to engage in certain actions. This emphasis stresses that the individual can actively choose to follow the paths or not, hence the aspects of the working environment are not deterministic in any sense. The metaphor is also used to emphasize that just as much as the environment co-constructs the individual and her/his actions, the individual also co-constructs the environment. There is a mutuality in the sense that (to put it metaphorically) the landscape is cultivated by people, but at the same time offer people certain ways of thinking and acting.

Noyes (2004) has emphasized four constituent elements that define a landscape, which are geology, climate, human impact and time. *Geology* refers to the fact that natural landscapes have a constraining geological structure where for example physical paths have emerged that invite people to walk a certain way rather than forcing a constraining terrain upon people. Within a working environment, geology can refer to the architecture such as an office landscape, the structural components and material tools of a working environment such as the character of the work assignments, formalized rules, artefacts etc.

Climate is the second aspect of the metaphor. It refers both to the macro climate, which is relatively constant, and the micro climate which reflects a local, natural environment (Noyes, 2004). Climate refers in this article to the semiotic tools that form meaning complexes such as public discourses as well as locally discourses within an organization. In a broad sense, it is the ways that people talk about things locally.

Human impact refers to the human influence on the natural environment such as farming, urbanisation, pollution etc., which can either benefit or have a detrimental effect on the landscape. In our case it will comprise the various initiatives and engagements within the organization such as the attitudes and concrete actions of employees as well as of the management. Examples could be the work organization, stress management courses, or leadership style.

The final element of the landscape metaphor is *time*. Obviously, time provides a framework in which change can take place. In this article, however, we do not devote much attention to this fourth aspect, but concentrate on the three first ones. These aspects of the landscape will structure the analysis of different semiotic and material resources within the working environment, which mediate and distribute specific appraisals and coping strategies. By invoking the landscape metaphor, we aim to expand our understanding of stress as something more than a transaction between the individual and a specific stressful situation at work.

METHODOLOGY

DESIGN OF THE STUDY

The present study is designed as a longitudinal mixed methods study of multiple cases. A case study at two departments in a multinational company in Denmark in the years 2011-2012 was conducted by the first author, combining three measurement-based questionnaires combined with a social network analysis (Wassermann & Faust, 1994) and a field study. In this article, we limit ourselves to describing the qualitative results of one of the departments, and the results from the other department will be published elsewhere. The reason is that both the types of work and dynamics of the two departments were very different and presenting an analysis of both departments would thereby demand more space than possible in the present article.

DESCRIPTION OF THE DEPARTMENT

The department was a research unit divided in two subdivisions, A and B, each conducting research but with different kinds of data material. The organization of work was characterized by its division in different research projects where researchers, lab technicians and technicians were allocated to different research projects with the researchers operating as project managers. Typically one researcher, 2-3 lab technicians and 1-2 technicians were allocated to a project. The researchers formulated study plans describing the lab tests that should be performed by the lab technicians and technicians. Prior to each research project, project meetings were held in order to discuss the research project and regular project meetings took place during the project in order to discuss the progression of the project. The researchers worked alone as project managers within the department, but as the research projects were part of larger projects within the organization, they also collaborated with project managers from other departments and attended project meetings with them. The lab technicians and technicians performed the laboratory tests.

In both divisions the researchers were primarily situated in private offices while the lab technicians and technicians were situated at multiperson offices.

QUALITATIVE INTERVIEWS

From the department in focus in this article 10 individual interviews and 6 group interviews were conducted. For the individual interviews the participants represented different divisions (A/B), different professional groups (researchers (5), lab technicians (3), technician (1) and one secretary), both sexes, different age groups (ranging from 22 to 60 years), employees with high/low stress (extracted from the questionnaire)

and employees peripheral and central in the network (extracted from the social network analysis). The reason for these criteria was to obtain a large variation in the understanding of their working environment and ways to cope with it.

The 6 group interviews comprised 3 group interviews with researchers, 2 group interviews with lab technicians and 1 group interview with technicians covering the total of 34 participants.

Each individual interview lasted about one hour and the group interviews lasted about 1½ hours and they were semi-structured and thereby responsive to the information and cues provided by the informants. The general questions formulated were based on theoretical presuppositions and themes, which had arisen during the fieldwork. The participants were encouraged to talk about their perceptions of their working conditions and their ways of coping with these. They were also encouraged to address their experiences within the organizational setting and related aspects of their relationship with their colleagues and management. The interviews took place at the work site, were digitally recorded and subsequently transcribed verbatim.

FIELD DATA COLLECTION

In order to understand everyday work life within the landscape of stress and coping, the employees' practices and relations were examined through ethnographic description and participant observation. The researcher was a known participant-observer and tried to establish close relationships with key employees and other participants in the field. The data were collected 2-3 days a week from September, 2011 to February, 2012 by observations at the work site, attendance at staff meetings and at informal employee meetings, participation at lunch and coffee breaks and attendance at a two-day seminar with the department. Furthermore two office-seats were provided in two different multiperson offices, which, in combination with informal talks with the employees in the corridor and at the laboratories, helped establish credibility among the employees. Observations in this context provided knowledge of "the working landscape" such as the physical and spatial organizations of the work site, the social interactions between the employees, the actual organizations of work and how these organizations enabled and disabled specific ways of appraising and coping with the environment. Furthermore it provided the chance of getting a background understanding of the persons and the practices they were part of in order to understand the meanings expressed in the individual and group interviews.

DATA ANALYSIS

The data collection and data analysis were a combination of deductive and inductive strategies where the frame of reference (a combination of the individual-socioecological perspective and a critical psychological mindset) partly guided the focus of observations and interviews. At the same time the researcher was inspired by the method of grounded theory (Strauss & Corbin, 1997), and by critically reflecting upon the frame of reference in combination with the ongoing data collection, the researcher tried to be open-minded towards new perspectives and interpretations. Furthermore, the ongoing readings of the “thick” descriptions (Geertz, 1973) through the field notes provided the researcher with possible new perspectives on the field, which she could apply and examine during the data collection.

Through these analyses the distribution of the appraisal and coping process through the working characteristics, physical surroundings, social relations and cultural practices emerged as key aspects which were significant in order to understand the situatedness and distributive character of the appraisal and coping process. The final results from the analysis were validated and discussed through a public feedback session with the personnel of the department.

RESULTS

THE APPRAISAL AND COPING LANDSCAPE OF THE RESEARCHERS

A dual appraisal of busyness

(Field notes extract)

One of the posters in the corridor was about safety procedures at work and caught my attention. The headline said: ‘We are a busy company, but that does not mean that you should forget about your safety’.

This material artefact, the poster, formed part of the *geology* of the workplace and offered a conception of busyness as a normal part of work. The poster stated we are a busy company as a neutral statement and thereby mediated busyness as a natural part of work in the company. Furthermore the placement of the statement about busyness before the actual intention of the sentence – to remind people of their safety at work – emphasize that the statement about busyness was important, and something one had to notice.

Another aspect of the working landscape was the *human impact* such as the work organization implemented by project managers or the management which also seemed to facilitate and understanding of busyness as an urgent and vital part of being at work.

In an interview, one of the researchers described the pressure she felt from managers and project managers from other areas of the organization:

“We have had a huge focus (on projects) with a very short time limit. Then there is not really time to perform tests at different stages of the process or time to learn from it. It is kind of like: ‘We have to have it all settled from the start and now we have to make the right decisions’, but we don’t really...I don’t feel it is possible to perform the tests necessary to make these decisions. It has to go fast and the expectations from others are that this project must not fail”.

This way of organizing the work offered a distinct conception of time as *something there is not enough of*. One of the researchers explained it like this: *“I have to remind myself all the time. Things must simply not take time here”*. This conception of time seemed to offer them a distinct appraisal of their working assignments as something they do not have enough time to perform. The conception of time and busyness was also expressed by the management. One of the managers described their attempts to engage the researchers in lowering their level of ambition in order to get the job done. The managers also explained that busyness was a positive thing, since for them it was related to motivation and was necessary in order for the employees to do their utmost. This conception of time and busyness was reflected in the organization of the number of assignments by the management. According to the researchers, their allocations of working hours to the assignments were downsized, when new projects arrived in order to fit extra assignments in which invited the researchers to appraise busyness as a natural and urgent part of their working conditions.

These specific pathways of specific appraisals of busyness made available through the geology and human impact contributed to a certain *climate* among the researchers. What was interesting was how the researchers transformed the cultural messages into distinct ways of appraising busyness, which was distributed among them. The climate was characterized by two opposing ‘*voices*’ in the appraisal of busyness. Busyness as being a *threat* to the researchers and busyness as being a *norm*, something the employees ought to strive for. A common theme in their conversations was the degree of busyness they experienced and how it made it difficult for them to perform their work in a proper manner, and they felt it was a threat to their wellbeing. Engaging in conversations with them about busyness, they often used their calendar to illustrate how little time they had to perform their job. But concurrently their articulation of busyness also reflected a normative idea, related to being a competent and important employee. One of the researchers described this dual process in an interview when he described the surprise he felt when realising through an analysis of his assignments that he was not as busy as he had thought:

Researcher: At one point I had made some scheduling of my work and discovered that I actually had time to do all I had imagined.

I really felt unease. I thought: No, this can't be right. I got all worried. I worried if I was being sidelined. The things I had get going, I had planned should take less time than I actually had in my calendar and that was quite unpleasant for me.

Interviewer: *How was it unpleasant – can you describe it further?*

Researcher: *Well, it can't be right, I have to...I'm the technology specialist; I have to be well under way, right?*

The quote reflects the duality in the conception of busyness. The researchers were used to think of time as something that was lacking, which seemed to offer a distinct appraisal of their working conditions as busy, even if this sometimes was not the case. Furthermore, when there was enough time, they got worried as it opposed their conception of being an important employee.

This normativity concerning time seemed to be distributed through the social interactions between the researchers and formed a climate among the researchers, which directed them to specific feelings, emotions and actions. One of the researchers stated:

"If you have to address stress, then it is not everyone in the corridor who is stressed. Because then we are really sick, but I think everybody feels that they are busy and nobody dare feel differently".

This quote reflects a common feeling among the researchers, that they ought to feel busy and it was reflected in both thoughts and actions. It seemed to guide them to feel disloyal toward their colleagues when they experienced periods of time when they were less busy and it seemed to guide the researchers toward engaging in specific actions that reflected that they were busy, such as mails sent late at night, meetings held during breaks or eating a quick lunch on the way from one meeting to another. One of the researchers describes the hectic atmosphere:

"My experience is kind of like, it is so important that we do this, mails that rush back and forth and then we have to attend meetings, and it is also important that we fix this and that, but it just seems so...so hectic in some way".

Through these actions the researchers seem to co-construct a busy work environment and offered colleagues a conception of busyness as a norm and something they ought to strive for.

Stress as an individual responsibility

The *human impact* such as the implementation of initiatives intended to prevent stress mediated a certain way of understanding why stress developed and how to cope with it. The stress management strategies implemented by the organization mediated an

understanding of busyness as something the employees should accept and learn to cope with. As a researcher explains:

"The training course we have in stress management explains that it is the tasks piling up that generate stress, but the message is that the pile never vanishes; so to put it briefly: learn to live with it".

The same logic was prevalent in relation to another element of the human impact, which in this case refers to the local management, which – during a discussion about busyness and stress – explained that they focused on how they could teach the employees to cope more efficiently. This logic was in line with a statement from the top management saying that they would not employ any more at the moment, so the employees had to learn how to work more efficiently.

An interview with a researcher who had attended the stress management course explains when talking about the course how this position is offered to him during the course and how it has changed his way of understanding stress:

"I thought maybe stress was developed if too many assignments were delegated to me, then I got stressed, period. And so straight forward I do not think it is today. I understand stress more as an individual thing, and then of course with some external factors, but just as much also with one's own personality that play together".

This quote reflects that the human impact, such as the organizational initiative of preventing stress, offered the employee an individualistic understanding of stress and later in the interview he exemplifies the variety of individualistic coping strategies, he was offered at the course. These strategies covered different ways the employee could enhance his own resources in order to be able to cope with the rising demands at work such as relaxation techniques, exercise, yoga and it became a central part of his own coping repertoire.

The individualized way of understanding and coping with stress was also present among other researchers in their understanding of the cause of stress. In interviews with researchers, who had been on sick leave due to stress, they focused on their own coping strategies instead of pointing to the working environment as an explanation of why they had developed stress. To the question 'why they had developed stress', one of them answered:

"I didn't express it clearly enough to my boss, I thought afterwards. That now I couldn't take it anymore. I probably told them that it was too much, but that everything would be alright".

It was very characteristic of their reflections that their focus was on how they could

have coped more efficiently. At the same time the development of stress was also understood in relation to the individuals' vulnerability. In an interview with one of the researchers, he focused on his own vulnerability in relation to his development of stress:

"I was shocked because I consider myself as fairly robust and a fairly strong person and things like that, and then to break down like that...it was quite a shocking experience for me; to see how vulnerable one might actually is".

The quote illustrates the attention he gives to his own vulnerability instead of focusing on the context within which his development of stress has occurred. This way of understanding stress also reflects the macroclimate such as the public stress discourse in society. Donnelly & Long (2003) have identified the individualistic stress discourse as the dominating discourse within western society and characterize it as focusing on the individual's own responsibility for developing stress and coping with it. These elements are present within the local discourses of the researchers as well as within the organization and thereby reflect both the meso- and microclimate.

Coping as an individual responsibility

As previously argued, the working landscape mediated and distributed specific ways of appraising the working conditions and also invited the researchers to use certain strategies and limit the use of others. The duality of the appraisal process where the researchers varied between two opposing 'voices' (busyness as a threat vs. busyness as a norm), was also present in their choice of coping strategy. The researchers had tried to a certain extent to alter their working conditions by addressing the management individually, but they did not experience that the management accommodated their concerns. Over time they increasingly engaged in adjusting to the working condition busyness.

The adjustment strategy

A common strategy used by the researchers was trying in different ways to adjust to the workload by enhancing their work pace and time spent on work, enhancing the work efficiency, enhancing their own resources and reducing the quality of their work. The *geology* of the workplace seemed in different ways to invite the researchers to use these individualistic ways of coping with the work load. Their placement in private offices combined with an individualistic structuring of their work, as they worked alone as project managers, invited the researchers to use more individualistic coping strategies. Furthermore, the tools required for performing their job were not situated at the workplace, which enabled the researchers to enhance the time spent on work at home during the evenings and weekends.

The chosen individualistic strategies were also derived from the fact that alternative strategies seemed less accessible to them as will be outlined below.

A limited access to the alteration strategy

The climate among the researchers, as well as within the organization as a whole, seemed to make it difficult for the researchers to try to alter their working conditions by addressing the management. One of the researchers said:

“It (the way the employees and the management talk about busyness) contributes to an atmosphere which makes it even harder to address the management and put one's foot down”.

The researcher refers to the normativity inherent in their appraisal of busyness previously described. When busyness was linked to being a competent and important employee, it seemed to limit the access to an alteration strategy such as addressing the management. This link between busyness and a competent employee seem to be reflected in another interview where a researcher explains that pride is the reason why he did not address the management:

Interviewer: *You haven't tried to go to the management and put your foot down?*
 Researcher: *No not so ultimate. No I haven't.*
 Interviewer: *What is the reason for that, you think?*
 Researcher: *Pride, I think”.*

Other researchers mentioned the fear of colleagues performing better on the assignment if it was passed further on to them and common for their reflections were that it seemed important for them to keep an appearance of being able to cope with busyness. In an interview with one of the researchers, where we talked about time and allocations, he stated:

“But whereas this narrative of, that we are very busy, but we can manoeuvre in it, it is far more in and something you would like to go around and tell. It would be a he-man story”.

But the *geology* of the work place also limited the access to addressing the management as a way to reduce the work load. Several of the researchers explained that due to their specialized assignments, it would enhance the work load if they should pass assignments on to the manager, because they had to spend a lot of time explaining the content of the assignments in order for the manager to pass it further on.

A limited access to professional and emotional support from colleagues

The *geology*, and in this case the characteristics of the working assignments, seem to limit the access to professional support from colleagues. During observations and interviews it became obvious that the researchers rarely went to seek professional help from their colleagues compared to the lab technicians and technicians. The specialized knowledge about their subject field made the researchers hesitate to use their colleagues for professional help. When asked about these observations, one of the researchers said:

“We are so specialized within each our working area, so it will take a lot of time and effort to seek professional help from each other”.

This illustrates that due to the characteristics of the working assignments, seeking professional help from each other did not make much sense to the researchers as it would enhance the work load.

But the observations revealed that besides not using each other for professional help, they did not use each other for emotional support either. Confronted with the observation one of the researchers said:

“And that is perhaps a weakness among us researchers that we handle our things by ourselves and asking someone else for help is not something we do”.

The *geology* and thereby the placement in private offices, combined with a high work load and an individualized working organization, jointly invited the researchers to not engage in strategies aiming at getting emotional support. One of the researchers said:

“I sit here and where I maybe ought to go over on the other side of the hall and joke or chitchat a bit. But I don’t feel I have time to do any of that. And it affects me emotionally, that I don’t have time”.

This quote does not relate to emotional support, but it does relate to the limited access the researchers feel they have in relation to addressing their colleagues due to the physical and working characteristics of the work place.

THE APPRAISAL AND COPING LANDSCAPE OF THE LAB TECHNICIANS AND TECHNICIANS

Busyness as a shared enemy

The lab technicians and technicians were introduced to a different landscape than the researchers in several ways. The *geology* of the working environment was for the lab technicians and technicians characterized by the location at multi-person offices, which invited them to engage in social interactions and communications about their common working conditions. They also had an equally organization of work as they performed lab tests (though with different material) for the researchers, and this placement in the hierarchical organization of work together with the physical placement seemed to strengthen the commitment in the group and thereby contributed to form a distinct *climate*. As one of the lab technicians explained:

“Maybe it’s because we feel more united as a group (as opposed to the researchers). The work we have and such...like the man on the floor. You feel you have something there.”

The climate was characterized by a strong group commitment and a strong concern for each other. The strong group commitment contributed to an ingroup/outgroup distinction (Valsiner, 2007) between the group and the management, and also in relation to the researchers. They often defined themselves as a group in opposition to the management and had created an oppositional ‘voice’ toward the offered appraisal of busyness by the organization toward the dominating individualistic stress discourse within the organization. Busyness was articulated as a threat toward their well-being, as something they could not accept, and that they had to collectively fight against. Furthermore they saw it as the management’s and the researchers’ responsibility to structure the working conditions reasonably.

In a group interview with the lab technicians, they had a dialogue about their working relationship and how it was affected by their experience of a high workload. In a reflection upon that, one of the lab technicians stated:

“You have to watch out that it does not get humanly related, when it is about something else. It is about a modern company that seeks to optimize and exploit the manpower more and more, but there is a pain threshold. We are not machines, you know”.

When they appraised the busyness as exceeding their resources, and thereby appraised busyness as a threat to their well-being, they often used the term ‘we’. Their appraisal was collective in the sense that they appraised busyness as a threat to the well-being of the group and not only to themselves individually.

Just as the climate seemed to mediate an appraisal of busyness as a threat toward their

well-being, it also mediated the content of the threat. When they talked about stress what came first to mind was that they were affected by their colleagues' state of mind more than busyness in itself.

"You get affected by your colleagues' state of mind. You do that because you spend so many hours at your work and it is not ok. It is not ok that you get sad by doing your job. Everyone can manage it a shorter period of time. It is when it has lasted a longer period of time it gets difficult, but when I can feel that my colleagues get sad then I get sad".

Another element which also contributes to the appraisal of busyness as a threat was the *geology* of the workplace such as the multi-person offices where they visually could see each other most of the time and were engaged in frequent interactions with each other. Thereby they constantly had a sense of each other's state of mind.

The previously mentioned appraisal of time as '*something that was not enough of*' which was experienced by the researchers, was also characteristic for the lab technicians, but a reverse appraisal of time was found for the technicians due to the *geology* and in this case the characteristics of their work tasks and interaction with technology. Their work was characterized by performing lab tests such as granulating in larger machines and each test were scheduled to last a fixed amount of time. The interaction with the machines seemed to invite the technicians to appraise time as something that was fixed and that they should not comply to busyness, which they passed on to each other. In an interview talking about how they passed that on, one of them explained:

"Remember the three ts: things take time. Granulation takes a certain amount of time and a boiling takes a certain amount of time. You can scream at the boiler, but it is not faster for that reason. Each thing takes a certain amount of time, and you can't change that".

This conception of time was reflected in their conception of busyness as they appraised busyness as something that was not their responsibility and as something they could not do anything about.

Stress as a contextual phenomenon

The lab technicians had a distinct contextual understanding of why stress developed, and the working conditions were conceived as the primary cause in relation to the development of stress. In a conversation about their experience of the work load, they focused on the working conditions and not on their own coping strategies, which an interview with one of the lab technicians illustrates:

“Why stress develops? Well stress just develops when you do not have time to do the things you want to do. The things you had imagined you had time to do. (...) And then seek to inform the people who delegate the work assignments that it cannot be done and that you have a realistic picture of how long time things take. And if the people who delegate the assignments think that you ought to do more then you just bring them to the laboratory to help and then they can see how busy it is, right?”

This way of understanding how stress develops mediated distinct collective ways of coping with stressful situations. Instead of focusing on their own coping strategies, they focused on how to identify who were responsible for their situation and then how collectively to approach these persons in order to alter the circumstances.

Coping as a collective strategy

The alteration strategy as an offered coping strategy

The attempt to alter the working conditions as a coping strategy characterized the group of lab technicians. If they were discontented with the work load, they tried to alter the working conditions individually as well as collectively. Their distinct climate seemed to invite the lab technicians and technicians to use the alteration strategy more frequently than the researchers did. Their strong group commitment and joint conversations about their working conditions made them more confident that it was a problem that had to be addressed. Furthermore, their ingroup/outgroup distinction between themselves and the management entailed that recognition from the group was more important to them than recognition from the management, something which made it less problematic for them to address the management. The alteration strategy therefore seemed natural for the lab technicians to engage in.

In a group interview one of the lab technicians said:

“I think we have all been to the management individually to express our frustrations and have tried to talk to our manager about how we can reduce the workload. Interviewer: Can you describe the managers’ reaction? Lab technician: He says that he hears what you’re saying, but that things are as they are”.

But they also engaged collectively in addressing the management. The collective attempt to alter the working conditions included collective meetings with the management arranged by the group of lab technicians and meetings within the group of lab technicians and technicians. The aim of these meetings was to alter the management decisions in order to reduce the workload. The lab technicians had initiated meetings every 14th day with the management where they had listed their assignments combined with their evaluation of the working hours each assignment

required. They hoped that it could provide a realistic evaluation of the magnitude of assignments in relation to the hours they were employed and consequently that the manager could see the urgency of getting their workload reduced. The group of technicians did not initiate regular meetings with the management, but explained in a group interview that they had a fixed coping repertoire within the group, which was addressing the management if the work load was experienced too high, and they passed that coping strategy on to newcomers.

Interviewer: Is it something you pass on to the newly appointed?

Technician 1: Yes, we are good at passing it on.

Technician 2: Then they just have to learn to comply with it.

Technician 1: It is important, because if you do like Marian explained: 'I can just do that, I can just squeeze it in tomorrow morning' etc., then it is going to be a mess, because it will not be removed from the system, and then the researchers think the next time: 'Yes, it works fine, why can't you make it? You could the last time'.

The two groups of lab technicians and technicians also engaged in joint actions in order to alter the working conditions. The meetings within the group of lab technicians and technicians when experiencing a common threat from the management was observed by the first author on one occasion and was characterized by a discussion of the problem, an appraisal of the problem collectively as being a threat towards their well-being, a discussion of how to handle the problem, the making of a plan and delegation of assignments to each other in order to effectuate that plan.

As the above quote expressed, the lab technicians and technicians did not experience that the management accommodated their concerns about the work load, which seemed to strengthen their ingroup/outgroup distinction.

Professional and emotional support as an offered coping strategy

Unlike the researchers, the lab technicians and technicians often helped each other with the working assignments within their respective groups.

One of the lab technicians explained:

"We help each other and we say that people have to tell us if they need help – then we jump in and help whenever we can. We try to do that a lot".

Due to the *geology* of the landscape, and in this case the characteristics of the working assignments, seeking professional help from each other was much easier for the lab technicians and technicians compared to the researchers. The lab technicians for example made the same laboratory tests and could thereby easily help each other with the tests.

Another characteristic of the lab technicians and technicians was that they also offered emotional support to each other. A lab technician explains:

“We talk about it. We often go to each other and say: ‘this is too much right now’ and it has strengthened our unity. It is nice that we have this confidentiality and when we are frustrated by our working conditions we start by saying it to our colleagues. Then you kind of have started”.

Again the geology and in this case the office landscape made the offering of emotional support easier as they were placed in multi-person offices and thereby had easier access to an ongoing communication with each other.

At the same time they found it increasingly difficult to help each other due to the experienced heavy work load. So while the geology invited the lab technicians to cope by helping each other due to the characteristics of the working assignments, the human impact, such as the delegation of the number of assignments, created barriers for being able to use this strategy continuously.

DISCUSSION AND IMPLICATIONS

The aim of this study was to explore the contextual embeddedness of stress and thereby the distributed and situated nature of the appraisal and coping process by introducing the metaphor of the landscape of appraisal and coping.

The results are twofold as they indicate group differences in appraisal and coping, but also indicate that these differences are deeply embedded in the specific context in the sense that the groups are offered different appraisals and coping strategies by the different aspects of the working environment. The landscape metaphor provided an elaboration of the working environment, while at the same time emphasizing that individuals only are invited to use certain paths and thereby that the environment do not determine certain behaviours.

The group differences were marked in the sense that busyness took different forms in the described practices, the employees' understanding of stress differed, and they engaged in different coping strategies in order to cope with a rising work load. The researchers used primarily individual strategies aimed at adjusting to the working conditions, while the lab technicians and technicians collectively tried to alter the working conditions. These differences in appraisal and coping seem to be generated by the fact that the groups were offered different appraisals and coping strategies by the physical surroundings, the work organization and characteristics, the existing social relations and the organizational culture and subculture within the groups.

The researchers were primarily placed in private offices, their work was individually organized, their work tasks were specialized and their cultural practice was characterized by reproducing the cultural messages on busyness through their actions. The lab technicians and technicians were primarily placed in multiperson offices, their work was organized in a way where they collaborated on different tasks, their work tasks were similar and their cultural practices were characterized by opposing the cultural messages on busyness.

Instead of taking a point of departure within the individual in trying to understand specific coping behaviour, the result of this study suggests looking into the availability of coping strategies within the working environment and thereby bringing the ecology of the working environment to the fore in understanding coping practices. The present results thereby offer a shift in focus away from the individuals' mental and internal coping process to the context in which the coping process takes place and serves as a preliminary step toward a more coherent understanding of the stress phenomenon at work.

The results add a new element to the current debate within the coping literature of whether coping is dispositional or situational (Moos & Holahan, 2003). The group differences found in this study supplement the conception that coping is either dispositional or situational. The situational perspective takes a point of departure in the type of stressor which can predict a specific coping practice. What this study shows is that appraisal and coping are also influenced by a variety of different aspects of the environment that do not function as risk factors or stressors as such and which offers ways of thinking and acting which is constantly reproduced through the actions of the individuals. This perspective thereby supplements the current debate as it emphasises that also other contextual factors than the specific stressor shape the coping behaviour. We believe that the landscape metaphor and its elements provide a useful perspective on the whole range of contextual factors.

The practical implications of this study point to the importance of having access to a variety of coping strategies within the working environment. A limited access to relevant coping strategies can imply that the employees are fixated in strategies that do not help alleviate the stressful condition. The two groups each seem fixated in individual and collective coping strategies respectively, which did not always contribute to alleviating their feeling of distress. The conclusion is therefore not that either individual or collective coping strategies are good or bad as such, but that the employees need to have a flexible access to a variety of strategies. The prevalent perspective on stress and coping in the literature does not take the variety of elements in the environment into account that do not function as risk factors and the interest in risk factors within the work place thereby needs to be supplemented with an interest in the ecological surroundings.

REFERENCES

- Astvik, W. and Melin, M. (2013). Coping with the imbalance between job demands and resources: A study of different coping patterns and implications for health and quality in human service work. *Journal of Social Work*, 13, 4, 337-360.
- Buch, A. and Andersen, V. (2013). (De)stabilizing Self-identities in Professional Work, *Nordic Journal of Working Life Studies*, 3,3, 155-173.
- Carver, C. S. & Connor-Smith, J. 2010. Personality and coping. *Annual Review of Psychology*, 61,1, 679-704.
- Clandinin, D. J. and Connelly, F. M. (1995). Teachers' professional knowledge landscapes. New York, NY: Teachers College Press.
- Donnelly, T.T. & Long, B.C. (2003). Stress Discourse and Western Biomedical Ideology: Rewriting Stress. *Issues in Mental Health Nursing*, 24, 397-408.
- Folkman, S. & Moskowitz, T. J. (2004). Coping: Pitfalls and Promise. *Annual Review of Psychology*, 55, 1, 745-774.
- Geertz, C. (1973). Thick Description: Toward an Interpretive Theory of Culture. In *The Interpretation of Cultures: Selected Essays*. (pp. 3-30). New York, NY: Basic Books.
- Hobfoll, S. E. (2001). The influence of culture, community and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology*, 50(3), 337-421.
- Hutchins, E. (1995). *Cognition in the wild*. Cambridge: Bradford Books.
- Kirkegaard, T. & Brinkmann, S. (in press) Rewriting stress: Toward a cultural psychology of collective stress at work. *Culture and Psychology* (accepted pending minor revisions)
- Lazarus, R. & Folkman, S. (1984). *Stress, Appraisal and Coping*. New York, NY: Springer
- Länsisalmi, H., Peiro, J. M. & Kivimäki, M. (2000). Collective stress and coping in the context of organizational culture. *European Journal of Work and Organizational Psychology*, 9, 4, 527-559.
- McNamara, B., Waddell, C. & Colvin, M. (1995). Threats to the good death: The cultural context of stress and coping among hospice nurses. *Sociology of Health and Illness*, 17, 2, 222-241.

Mickelson, K. D., Lyons, R.F., Sullivan, M.J.L., & Coyne, J.C. (2001). "Yours, Mine, Ours: The Relational Context of Communal Coping." In B.R. Sarason & S. Duck (Eds.), *Personal Relationships: Implications for Clinical and Community Psychology*, (pp. 181–200). New York: Wiley.

Moos, R.H. and Holahan, C.J. (2003). Dispositional and contextual perspectives on coping: Toward an integrative framework. *J.Clin. Psychol.* 59, 1387-1403.

Nielsen, K. & Kvale, S. (2003). Vandringer i praktikkens læringslandskab. In K. Nielsen & S. Kvale (Eds.), *Praktikkens Læringslandskab: At lære gennem arbejde* (pp. 16-38). København: Akademisk forlag.

Noyes, A. (2004) Learning landscapes. *British Educational Research Journal*, 30, 1, 27-41.

Pienaar, J. (2008). Skeleton key or siren song: Is coping the answer to balancing work and well-being? In K. Näswall, J. Hellgren & M. Sverke (Eds.), *The Individual in the Changing Working Life* (pp. 235-257). Cambridge: Cambridge University Press.

Strauss, A. & Corbin, J. (1997). *Basics of qualitative research: Grounded theory procedures and techniques* (20. printing ed.). Newbury Park, CA: Sage.

Valsiner, J. & Van der Veer, R. (2000). *The social mind: Construction of the idea*. New York, NY: Cambridge University Press.

Valsiner, J. (2007). *Culture in minds and societies: Foundations of Cultural Psychology*. Los Angeles, LA: Sage Publications.

Wainwright, D. & Calnan, M. (2002). *Work stress: The making of a modern epidemic*. Berkshire, UK: Open University Press.

Wasserman, S. & Faust, K. (1994). *Social network analysis: Methods and applications* (Vol. 8). Cambridge, UK: Cambridge University Press

CHAPTER 9: PAPER III

WITH A LITTLE COPING FROM MY FRIENDS: A MIXED METHODS STUDY OF THE DISTRIBUTED NATURE OF COPING IN ORGANISATIONS⁴

Tanja Kirkegaard, Christian Waldstrøm, Johan Hviid Andersen

ABSTRACT.

In this study, we explore the distributed nature of coping and thereby expand the understanding of coping as more than a transaction between the individual and a specific stressful situation. We argue that coping is not just an individual process, but is embedded in the organizational and thereby social and cultural environment, the employees form part of.

Results from a longitudinal mixed methods study at one department in a large Danish company indicate that specific ways of coping are socially distributed among employees due to organizational, cultural and managerial characteristics. The quantitative part of the study indicates significant differences in coping between formal groups as well as between informal subgroups in the department. The qualitative part of the study reveals how the group differences in coping emerge due to specific cultural goals represented in the two groups and that a lack of a managerial accommodation of the groups concern seem to polarize the coping practice of the groups over time. Thus in this article we aim at illuminating that coping is not just an individual matter, but something that one learns from, and shares with one's social group.

Keywords: Coping, stress, social networks, distributed

INTRODUCTION

In the Third European survey of working conditions, experienced work-related stress was the second most frequently reported health problem (Paoli & Merllié, 2001). Extensive research has been conducted in order to grasp the dynamics of stress and

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in particular in how individuals choose to cope with stress. Coping is often defined as individual efforts to prevent or diminish threat, harm and loss or to reduce associated distress (Carver & Connor-Smith, 2010) and this process seem to have become more important than previous. Allvin (2008) has argued that employees' coping strategies have become more central than before in understanding stress due to the decentralization of responsibility in modern working life as it demands a greater self-regulation from employees.

The coping literature draws largely on the cognitive approach presented by Lazarus and Folkman (1984). This approach comprises a transactional theory of stress where he emphasizes that the way the individual appraises and copes with the environment is central in the stress process and is constituted by the individual's transaction with the environment. In spite of the transactional approach, which acknowledges that the individual is embedded in a social context (Folkman & Moskowitz, 2004) the succeeding literature on appraisal and coping has been dominated by an individualistic approach. The individualistic approach is characterized by studies of how personality features influence the individuals coping practice, which is termed *dispositional coping* (Carver & Connor-Smith, 2010). Within this line of research, studies have indicated that coping is stable across different contexts (see e.g., Gil, Wilson, & Edens, 1997) and that coping styles are related to the five basic factors of personality (Hewitt & Flett, 1996). The individualistic approach is also reflected in the research in the actual coping strategies where Folkman & Moskowitz (2004) have argued that the interest primarily is in personal control, personal agency and direct action.

Two large meta-analyses (Connor-Smith & Flachsbart, 2007; Nes & Segerstrom, 2006) suggest that relations between personality and coping are modest and points to the need for considering moderators of relations between personality and coping. Carver & Connor-Smith (2010) add to this recommendation by criticizing this line of research for its inadequate consideration of situational factors and for its overreliance on cross-sectional design.

Research has begun to incorporate context as a factor in understanding coping behaviour by introducing the concept of situational coping (Mattlin, Wethington, & Kessler, 1990; Pienaar, 2008) which refers to how specific stressors can predict coping behaviour. Carver & Connor-Smith (2010) criticize this approach for assessing situational coping with a point of departure in only one stressor and they argue that little is known about the timing, order, combination or duration of coping. It can additionally be argued that this research area does not take the social context in which coping occurs into account and an actual focus on how social interactions affect and shape the employees' coping practices and how this process is embedded in a specific organizational context is limited.

COPING AS A SOCIAL AND COLLECTIVE CONSTRUCT

Folkman & Moskowitz (2004) have argued that most of the literature focusing on the social aspects of coping has been addressing the consequences of coping on social relationships (see e.g., Berghuis & Stanton, 2002; DeLongis & O'Brien, 1990) and another research area within the social aspects of coping is the influence of social support on stress (Bowling, Beehr, & Swader, 2005; Browner, 1987; Etzion, 1984). However, while researchers have recognized the importance of social support in the workplace, there has been a lack of attention given to the social aspects that comprise and shape social support and coping in general. Zimmerman & Applegate (1994) have argued that we need to look further into how employees interpret, define and negotiate social support.

Inspired by the social constructionist perspective, studies have been carried out that explore the ways in which different discourses shape stress understandings and stress experiences at work (Dick, 2000; Harkness et al., 2005; Kinman & Jones, 2005; Lewig & Dollard, 2001). These studies have focused on stress experiences and understandings from a discursive perspective and show that different discourses influence stress understandings but they do not address how specific organizational factors add to this process. However, Lämsä et al., (2000) have in a qualitative case study investigated the cultural dimension of stress experience and coping in a concrete organization focusing on the impact of organizational culture on occupational stress experiences, perceptions of stressors and coping practices. Following three independent divisions within a multinational company, they found that these divisions differed in the appraisals of stressors, in coping practices and in stress experiences due to different organizational subcultures within each division (Lämsä et al., 2000). What this study does not address, however, is the subcultural differences in coping within the same organizational unit and how and why these subcultural differences develop over time. To our knowledge, there are no studies that have addressed these questions, and the purpose of this paper is to address these questions.

DISTRIBUTED COPING

Within this study, we have our conceptual point of departure in the developed concepts of *distributed appraisal and coping* (Kirkegaard & Brinkmann, In press). The concepts have its theoretical foundation in the theory of distributed cognition (Hutchins, 1995) and cultural psychology (Valsiner, 2007; Valsiner & van der-Veer, 2000) and this theoretical perspective emphasizes the importance of the ecological surroundings in understanding individuals thoughts and action. The concepts emphasize that distinct ways of coping are distributed between persons through the social use of semiotic (language, communication) and material (artefacts, tools, physical surroundings) resources or signs within the environment. Individuals are embedded in specific social and physical contexts, which constitute certain ways of appraising and coping with

the working environment, and thus offer or invite the employees to engage in certain appraisal and coping practices and limit the use of others. The concepts of distributed appraisal and coping thereby accentuate that how we cope is not just an individual process but is developed in interaction with others as well as in interaction with the material environment.

Valsiner (2007) has introduced the concepts of semiotic and material promoters and inhibitors that enable the regulation of meaning, which reflect the communicative and physical resources and barriers for distinct appraisal and coping within this article. The communicative resources and barriers involve other peoples' experiences and interpretations of the world, which entail specific social suggestions of how to appraise and not to appraise the working environment and how to cope or not to cope with the working conditions. These resources can form that of a social representation understood as a meaning complex that guide particular thoughts, feelings, and acting processes (Valsiner, 2003) which can function as both at resource and a barrier for coping. The material resources and barriers entail the physical surroundings, technology, artefacts, etc. that are part of our work practice. These barriers and resources for appraising and coping with our working conditions can contribute to what Zittoun et al. (2003) label ruptures which refers to discontinuity in a person's life trajectory. A rupture can point in new directions, but if the barrier is difficult to overcome, it can inhibit or block further progress (de Mattos & Chaves, 2013). Within this theoretical framework, barriers and resources for coping are highly relevant as they contribute to a contextual understanding of how coping practices emerge and develop as well as why.

The aim of this study is therefore to explore empirically the distributed nature of coping over time by examining formal and informal group differences in coping within one department. We examine how and why these differences emerge through an analysis of the specific organizational context, the employees are embedded in and through their patterns of communication and action.

Methodologically, coping research has largely been based on quantitative measures but several researchers argue for the need of using alternative approaches as a complement to traditional methods (Carver & Connor-Smith, 2010; Dewe, Leiter, & Cox, 2000; Dewe & Trenberth, 2004; Pienaar, 2008). Dewe & Trenberth (2004) have argued that coping research need to focus on the dynamics of stress and thereby focus on sequences of events inherent in the stress process instead of addressing a simple relationship between certain variables. Furthermore they emphasize that the context within which coping takes place must be addressed and lastly that researchers need to develop interdisciplinary research that integrate different orientations and shift focus away from the dominant tradition. Within this line of thought Dewe and Trenberth (2004) argue that we have to link the individual to the environment and adopt measurement methods that are more ecologically sensitive and narrative in explanation.

As we both want to examine group differences in coping over time as well as exploring the concrete organizational context and contextual coping processes in order to explain these differences, we use a broader range of methods in this paper.

METHOD

The mixed method case study is performed in a department of a multinational company located in Denmark during 2011 and 2012. The data consists of field data, qualitative interviews and survey data.

CASE DESCRIPTION

The department participating in this study is a research unit within a large multinational biotech company, divided into two small subdivisions (A & B). Subdivision A was situated at the ground floor and consisted of researchers, lab technicians, technicians, a secretary, two deputy managers and a division manager. The lab technicians and technicians were situated in one corridor separate from the researchers. They were primarily placed in multi-person offices, but two employees and the deputy manager were placed in private offices. In another corridor, the researchers and the secretary were situated in private offices except from two researchers who shared an office.

Subdivision B was situated on the first floor and consisted of researchers, lab technicians and a deputy manager. The researchers and lab technicians were placed on the same corridor; the lab technicians at multi-person offices and the researchers at private offices. At the end of the corridor a newly build extension was housing newly employed researchers as well as other researchers with two persons in each office.

The two subdivisions conducted research with different data material but their work was equally organized. It was characterized by projects where the researchers operated as project managers with lab technicians and technicians allocated to those projects. The researchers formulated study plans describing the lab tests that had to be conducted and they were handed to the lab technicians and technicians, who then performed the tests. Regular project meetings were held in order to discuss the progression of the research project. The research projects were part of larger projects in collaboration with the other departments of the organization so the researchers often attended project meetings with project managers from the other participating departments. The two subdivisions had the same department manager but different deputy managers and there was some collaboration across the two subdivisions.

One of the main work environmental issues experienced by the researchers in both subdivisions was the allocation on too many research projects, which made the researchers experience that they did not have enough time to perform their work

assignments. They were highly depended on the lab technicians could perform the lab tests on time.

The lab technicians in both subdivisions also experienced busyness as one of the main work environmental issues caused by the large amount of research projects allocated to the researchers. In subdivision A, five researchers had been employed without a corresponding increase in the number of lab technicians, which implied additional work for the lab technicians.

PARTICIPANTS AND PROCEDURE

At the beginning of our research, the department consisted of 22 researchers, 16 lab technicians, 8 technicians, 1 secretary, 1 department manager and 2 deputy managers. The mean age was 42.5 years ($SD=10.6$) ranging from 23-63 years). The mean seniority was 13.4 years ($SD=12.4$) ranging from less than a year to 42 years). 52 % of the employees were males and 48 % were females. In the period of study, there was very little personnel turnover and therefore no significant changes in the department. For both the quantitative and qualitative part of the study, participation was voluntary and respondents were assured that their responses would be confidential and used for research only.

QUANTITATIVE DATA

For the quantitative part of the study, we used an electronic questionnaire, which was emailed to everybody in the departments three times during the 12 months (at baseline, and after six and twelve months). Our response rate for the first round was 74 %, for the second and third round, our response rate was 98 %. At all three times an email reminder was sent out after one week. Due to the low response rate at T1 (particularly among the researchers), this data collection point is disregarded in the following analysis.

The survey was a large-scale questionnaire composed of two parts. The first part consisted of seven relational questions comprising a social network analysis (SNA) (Borgatti, Everett, & Johnson, 2013; Wasserman & Faust, 1994) and using a roster method (Marsden, 1990) for selection. The relational questions were focused on the frequency and importance of both work-related and non-work-related interactions with colleagues, wish for more interaction with others, along with questions about the perceived influence and trust in others. For the purpose of this study, only the networks consisting of non-work-related ties that the employees reported as most important are employed.

The second part of the questionnaire consisted of 120 items measuring work environment factors and stress symptoms (Kristensen, Hannerz, Høgh, & Borg, 2005; Pejtersen, Kristensen, Borg, & Bjorner, 2010), perceived stress (Cohen, Kamarck, & Mermelstein, 1983), coping strategies (Carver, Scheier, & Weintraub, 1989), and emotional contagion (Mehrabian & Epstein, 1972). This paper only focuses on perceived stress and coping and therefore only measures regarding these parameters will be addressed.

The Perceived Stress Scale (PSS-10) is a self-reported measure of global stress and measures the extent to which people find their life unpredictable, uncontrollable and overwhelming (Cohen et al., 1983). It consists of ten questions rated on a 5 point Likert Scale ranging from 'never' to 'very often' (range: items 0-4, total 0-40). The scale has a Cronbach's α of 0.78 (Cohen & Williamson, 1988). A Danish translation of the PSS-10 was used. In our study, the PSS-10 had a Cronbach's α of 0.82 (T2)/0.84 (T3).

Coping was assessed using the Brief COPE Questionnaire (Carver, 1997). The brief cope questionnaire measures the use of different coping strategies. It is a 28-item questionnaire measuring 14 dimensions of coping. Each item is rated on a 4-point Likert scale ranging from 'never' to 'very often' (range: items 1-4, dimension 2-8). Nine of the 14 dimensions were chosen for this study, these include: Active coping, Self-distraction, Self-blame, Behavioural disengagement, Instrumental support, Venting, Positive reinterpretation, Humour and Acceptance. All nine dimensions have Cronbach's α of 0.50 to 0.73 (Carver, 1997). The study used a Danish translation of the Brief COPE. In the present translation and study sample, the nine dimensions of Brief COPE had Cronbach's α in the 0.55-0.86 range for T2 except from the coping strategy acceptance, which only had a Cronbach's α of 0.24. At T3 the range was from 0.42-0.82 except the strategy acceptance which had a Cronbach's α of 0.17.

Self-blame refers to criticizing oneself for what has happened. Positive reframing refers to trying to see something good in what has happened. Acceptance includes learning to live with it. Humour refers to making fun of the situation. Instrumental support aims at getting help and advice from other people. Self-distraction includes turning to other activities in order to think about it less. Active coping includes taking direct action to deal with the problem. Venting refers to expressing negative feelings. Behavioural disengagement refers to giving up trying to deal with it

QUALITATIVE MEASURES

In order to grasp the distributed nature of coping, we gathered descriptive data. The data were collected in 2011 to 2012, in the middle of the period of data collection by individual and group semi-structured interviews and observations at the work site.

Observations at the work site

In order to understand the everyday work life within the different groups, we examined their practices and relations through an ethnographic description and participant observations. Data was collected 2 days a week during the 5 months by observations at the work site, observations at lunch and coffee breaks, observations at professional group meetings as well as department meetings and participation at a two-day seminar with the department. During the five months, we were free to choose between two different office seats, one in each subdivision.

The strengths of observations in this context were that it enabled observations of the concrete organizational context such as the physical and spatial organizations of the work site, the actual organizations of work and managerial actions. Furthermore, it provided us with information about the relations and interactions between the employees as well as between the employees and the management, their group behaviour, their communication about the working environment, their coping behaviour and gave us a more in depth understanding of the interaction between organizational context and social processes.

It also gave us a chance of getting a background understanding of the person and the practice he/she was part of in order to understand the meanings expressed in the individual and group interviews.

INTERVIEWS

A total of 10 informants were interviewed individually over a period of 4 months, after 1 month of observation. The informants represented both subdivisions, different professional groups (researchers (5), lab technicians (3), one technician and one secretary), both sexes, different age groups (ranging from 22-60 years), different levels of stress (high/low) and different levels of centrality within the network. Information about their level of stress was derived from the results from the questionnaire. The themes guiding the interviews were: (1) description of a typical day at work, work assignments, working organization; (2) personal interpretations on the results of the questionnaire; (3) social network; (4) individual experiences with stress and individual appraisal and coping; (5) interpersonal appraisal and coping; (6) group appraisal and coping; (7) cultural characteristics of the groups; (8) trajectories of participation and stress; (9) physical artifacts; (10) stress discourses; and (11) changes over time in perception of stress and ways of coping.

The last month of the fieldwork, in 2012, we conducted group interviews (N=6) covering a total of 34 interviewees. The six group interviews included three group interviews with the researchers, two group interviews with the lab technicians and one group interview with the technicians. Group interviews were chosen, as we were

interested in the different social distributed interpretations within each group, which are easier to detect in-group interviews. Furthermore, we were interested in observing the group dynamics while discussing themes generated during the fieldwork. The specific themes guiding the group interviews were: (1) definition of stress, (2) description of situations, which causes distress, (3) description of their way of coping with distress, (4) description of their group, (5) description of their working environment (6) Changes over time in perception of stress and ways of coping in the group (7) stress discourses. We chose semi-structured interview, as we were free to follow interesting subjects discussed in the interview, and build upon information from previous interviews, thus not necessarily keeping to exactly the same questions each time. In this way, each interview was used to expand understanding of the distributed nature of coping. The individual interviews lasted about one hour and took place at the work site; the group interviews lasted about 1½ hour. They were all digitally recorded and subsequently transcribed verbatim.

ANALYSIS

Statistical analysis was performed using the SPSS package (IBM, 2012). Formal group differences were compared using Students' t-test at two time points, T2 and T3. Multivariate analyses were not conducted because of the relatively low number of participants within the groups.

In order to measure within group differences a social network analysis was performed and the derived subgroups were then compared using Students' t-tests to analyse if there were differences in coping between the two networks. NetDraw (Borgatti, 2002) was used to visualize the group differences in coping. To enable comparisons between the different measures, effect sizes were calculated using Cohen's *d* (Cohen, 1988). Effect size is a simple way of emphasizing the size of the difference between two groups rather than confounding this with sample size. Cohen (1969) has argued that an effect size of 0.2 is small, 0.5 as medium and 0.8 as large, which will be our guidelines in our analysis of the results. Estimates were reported with their 95 % confidence intervals (95% CI).

The data collection and data analysis in the qualitative part of the study were a combination of deductive and inductive strategies where the theoretical frame of reference partly guided the focus of observations and interviews. At the same time we conducted an inductive analysis of the data following the basic principles of grounded theory (Strauss & Corbin, 1997). This insures a descriptive theory of the distributed nature of stress and coping and to formulate preliminary presuppositions about the phenomenon.

The data were read and categorized into concepts using open coding and subsequently organized by themes, which laid the ground for the development of stable categories

(Strauss & Corbin, 1997). Three categories were derived from the process: 1) Cultural messages about employees’ perception and action (e.g., cultural messages about busyness, performance, stress, social support etc.) 2) social negotiations of the cultural messages (guiding suggestions of how to appraise and cope with the working environment such as social representations) 3) the actual appraisal and coping behaviour.

These categories were validated by the triangulation of methods and the reading of the thick descriptions (Geertz, 1973) provided by the participant observations and the transcriptions of the individual and group interviews. The results from the analysis were validated and discussed through a public feedback session with the personnel of the department.

RESULTS

Students’ t-test conducted at two time points, T2 and T3, did not indicate significant differences between the researchers and the lab technicians in perceived stress as indicated in the table below. Even though there was no significant difference between the groups, the researchers perceived their stress to be higher at T2 than the lab technicians did, but at T3 they did not differ due to an increase in perceived stress within the group of lab technicians.

	Researchers Mean [SD]	Lab technicians Mean [SD]	Mean diff. [95 % CI]	Effect size d	p-value
T2	26.00 [3.34]	23.93 [6.46]	2.06 [-1.49 5.63]	0.40	.246
T3	24.63 [4.90]	24.93 [6.14]	-0.30 [-4.10 3.49]	0.05	.871

Table 7. Group differences in perceived stress between researchers and lab technicians at T2 and T3

The mean scores on the perceived stress scale within this sample are relatively high. When compared to a Danish stress management intervention study, the perceived stress score at baseline in the intervention group was M=26.37 / SD=5.80 (Willert, Thulstrup, Hertz, & Bonde, 2009).

Formal group differences in coping

Students’ t-test was conducted at T2 and T3 and the results indicated an increased difference in specific coping strategies between the group of researchers and the group of lab technicians at T3 compared to T2. At T2 there were a significant difference

between the researchers and the lab technicians in the coping strategy venting as the lab technicians used this strategy to a higher extent ($M=2.66$; $SD=.58$) than the researchers ($M=2.11$; $SD=.65$). The results for the group differences are depicted in table 8:

Coping strategies	Researchers Mean [SD]	Lab technicians Mean [SD]	Mean diff. [95 % CI]	Effect size d	p-value
Behavioural disengagement	1.43 [.54]	1.63 [.58]	-0.20 [-.58, .17]	0.35	.288
Self-distraction	2.09 [.70]	2.33 [.52]	-0.24 [-.67, .18]	0.38	.263
Positive reframing	2.81 [.52]	3.16 [.64]	-0.34 [-.73, .04]	0.60	.079
Venting	2.11 [.65]	2.66 [.58]	-0.55 [-.97, -.12]	0.89	.013
Instrumental support	2.90 [.50]	2.90 [.71]	0.00 [-.39, .41]	0.00	.964
Self-blame	2.75 [.68]	2.63 [.69]	0.11 [-.35, .58]	0.17	.616
Acceptance	2.90 [.62]	2.78 [.46]	0.12 [-.27, .52]	0.21	.533
Active coping	3.20 [.61]	3.23 [.62]	-0.02 [-.44, .38]	0.04	.890
Humour	2.34 [1.02]	2.33 [.85]	0.00 [-.64, .66]	0.01	.981

Table 8. Group differences in coping between researchers and lab technicians at T2

At T3 there were significant differences between the researchers and the lab technicians in four different coping strategies. There was a significant difference between researchers and the lab technicians in the coping strategy, instrumental support, $p<.011$, self-distraction, $p<.014$, positive reframing, $p<.008$, venting, $p<.004$. All differences represented a large-sized effect, which is displayed in table 9.

Furthermore, behavioural disengagement was close to significant, $p<.051$ and it represented a medium- to large-sized effect $d=0.74$, so we will include it in our analysis. The statistical analyses did not indicate significant differences between the two groups in relation to self-blame, acceptance, active coping and humour, as depicted in table 9:

Coping strategies	Researchers Mean [SD]	Lab technicians Mean [SD]	Mean diff. [95 % CI]	Effect size d	p-value
Behavioural disengagement	1.42 [.56]	1.88 [.67]	-0.41 [-.84, .00]	0.74	.051
Self-distraction	1.92 [.63]	2.46 [.61]	-0.54 [-.97, -.11]	0.87	.014
Positive reframing	2.73 [.56]	3.28 [.57]	-0.54 [-.93, -.15]	0.97	.008
Venting	2.10 [.64]	2.75 [.60]	-0.65 [-1.07, -.22]	1.04	.004
Instrumental support	2.77 [.63]	3.34 [.62]	-0.56 [-.99, -.13]	0.91	.011
Self-blame	2.80 [.52]	2.81 [.75]	-0.01 [-.44, .41]	0.01	.953
Acceptance	2.67 [.67]	2.93 [.79]	-0.25 [-.76, .24]	0.35	.308
Active coping	3.27 [.49]	3.18 [.70]	-0.08 [-.32, .49]	0.14	.666
Humour	2.15 [.92]	2.21 [.89]	0.03 [-.69, .56]	0.06	.845

Table 9. Group differences in coping between researchers and lab technicians at T3

The mean scores indicate that the lab technicians used most of the coping strategies more frequently than the researchers at T2 except from instrumental support, active coping and humour where they were quite similar in their utilisation of these strategies. Nevertheless, this difference developed over time so that the researchers showed a decrease in most of the strategies and only increased in self-blame and active coping while the lab technicians increased in most of the strategies except from active coping and humour. It was especially in instrumental support where the largest decrease was present for the researchers and the largest increase developed for the lab technicians.

COPING DEVELOPMENT IN THE TWO GROUPS

The qualitative part of the study indicates that one of the reasons for this small but increasing polarization between the researchers and the lab technicians over time seem to be due to a continuous managerial barrier for trying to alter the work load which seems to strengthen the cultural characteristics of the two groups. It will be argued that the two groups have different goals in relation to their work trajectories and therefore they engage in different coping practices in order to cope with the continuous managerial barrier for changing the work conditions.

The managerial barrier

One of the main work environmental issue experienced by both the researchers and the lab technicians was an excessive workload due to the department's responsibility for a new highly prioritized research project. Both groups had initiatively addressed the management in order to get the workload reduced, but common for both groups was that they did not experience that the management accommodated their concerns. As one of the researchers stated:

For instance, this survey you have made – it also contains issues that have been debated previously. We've had these discussions before and nothing's been changed. It's the same signals we send to management and they don't react upon them.

There was a shared conception among the employees that the deputy managers were primarily engaged in maintaining a good relationship with their manager instead of focusing on the employees. One of the researchers puts it this way:

So it seems that they (the deputy managers) please upwards and never say 'no' – if there are tasks, they just take them out of fear of looking bad to their manager [...] Our (deputy) manager ought to be 'our man' – not the managers man.

The experience that the management did not initiate actions in order to reduce the workload can be described as a rupture as it was a discontinuity of their work and coping trajectories and thereby a barrier toward a coping practice they often applied. This rupture seemed to strengthen the employees engagement in coping practices characteristic of the two groups prior to the experiences with the management and thereby enhanced the different cultural characteristics of the two groups.

The development in coping practice of the researchers

In the case of the researchers, the quantitative results indicated that active coping was the most frequently assessed strategy for the researchers at T2 and T3. The results also indicated that there was a small increase in the use of this strategy from T2 to T3 together with self-blame whereas they decreased in the other coping strategies especially in instrumental coping. The strategy active coping was elaborated in the qualitative study indicating that at T2 it both comprised addressing the management individually as well as trying to work their way out of it. The reaction toward the continuous managerial barrier, however, was to decrease in their attempt to address the management and continue working more extensively between T2 and T3. The attempt to work their way out of it was characterized by increasing the hours spent on work, increasing the work pace and an increasing in work efficiency. It was also characterized by reducing the quality of their work and reducing the social interactions with colleagues. As one of the lab technicians stated:

“You can say that the balance now is that the researchers sit 100% in the offices”

The qualitative results thereby indicate that the researchers intensified their practice of adjusting to the working conditions by working more extensively, which we have chosen to label the individualized adjustment strategy. This development of the coping practice seemed to be highly linked to the cultural practice and social negotiation and distribution of a specific goal of their work trajectories within the group of researchers

The cultural characteristics of the researchers.

The researchers shared the goal of performing well. This goal was related to the cultural messages of busyness and performance from the management and colleagues and were reproduced through the actions of the researchers.

Specific social representations such as *“we are busy”* and *“I’ll have to perform”* seemed to be present within the group of researchers and seemed to guide the researchers in their way of coping with the working conditions. In a group interview with the researchers, one of the researchers explained how busyness had become a brand:

“It has become kind of a brand. It is rare that you meet someone who says: ‘Yes, I’m having a good time’. Have you experienced that? Before it was important to go to work and look cool – now you have to show you’re stressed”.

However, there were also cultural messages on performance, which came from the local and top management and from developed measures of performance, which were reproduced through the actions of the researchers and seemed to make suggestions of how to think and act. In the same group interview with the researchers it is exemplified, as one of them said:

“I find the organization incredibly performance oriented and I’ve been a couple of different places and they were not at all performance oriented like this organization and it is reflected in action plans and the performance metrics and it makes me feel kind of stressed all the time – that now I have to perform. It is everywhere in a way I don’t think is beneficial”.

These quotes describe the experienced social suggestions of how to act which also were visible in their behaviour where they reproduced the cultural messages. For example, they experienced ambivalence between ‘saying no to assignments’ and ‘keeping the assignments’ which developed over time in the direction of keeping the assignments.

An interview with a researcher reflects this ambivalence and development when he explains his former and contemporary experiences with the managerial actions in relation to the workload and his own coping practice. The direction of his coping approach became more individualized over time.

Talking about his experiences with the management within the last months he explains:

“I’ve experienced this a few times now: I’ve already said no, but I still get extra projects. [...] I just get projects tossed onto my desk and it’s not a choice, so you just do it on top of everything else. [...] So I’m unsure if it’s because I’m not telling the management clearly enough, or if they just don’t react to what we say”.

Asked if he still uses the strategy of saying no to assignments he is focusing more on his own interest in the assignments instead of the process of saying no:

“Yes, I still use that strategy, but I’m not so good at it. There is something not quite right in my head, I think. I really like these tasks, I have, and I don’t like to hand them off. It’s difficult”.

This ambivalence was characteristic for many of the researchers as they independently of each other described the same difficulty and pointed to pride as a reason or fear of better performance from their colleagues on the assignments.

The performance goal which was characteristic for the researchers and which were related to the cultural messages within the organization seemed to guide the researchers to engage in working more extensively instead of continuing addressing the management in order to reduce the workload. The ambivalence between saying no to assignments and keeping the assignments thereby often resulted in keeping the assignments due to the shared goal within their cultural practice.

The previously described decrease in the use of instrumental support, their low use of venting and emotional support (extracted from the qualitative data) also has to be understood through their shared goal. Asked about their use of the coping strategy instrumental support they often answered that they did not have time anymore to use that strategy, but their cultural practice was also characterized by ‘getting things done’ instead of addressing others to get their help. One of the researchers explained when we talked about getting support from others:

“Well my focus would be on getting things done and then it would not help if you came and listened to my frustrations. Maybe it is characteristic for the researchers, that getting things done is in focus. You fight to keep up as well as you can”.

There were also some negative connotations in getting help from others, which could explain why this coping strategy was not so prevalent among the researchers. One of the researchers stated:

“It is rare that people come to me; then it is maybe David. He perhaps comes and says that he is busy, when he is busy, but I do not experience that others come and whine”.

This quote illustrates that support is associated with whining, which send a cultural message on how not to cope with an excessive workload. The rupture was to a certain extent resolved for the researchers as their revised way of coping complied with the managerial barrier for reducing the workload.

In the next section, we will analyze the group of lab technicians who shared a different goal and had different reactions to the managerial barrier.

The development in coping practice within the group of lab technicians

The quantitative results indicate that at T3 the most frequently used strategies were active coping and instrumental support and there was an increase over time in most of the strategies but especially in the use of instrumental support.

The qualitative results indicate that at T2 active coping was related to addressing the management in order to alter the work conditions and trying to work their way out of it. At T3 active coping was primarily related to addressing the management. The lab technicians' reaction toward the continuous managerial barrier, were to increase in their attempt to address the management in order to change the working conditions. These attempts were both individual as well as collective attempts and were characterized by providing the manager with an overview of work assignments, giving the manager the responsibility to prioritize in the work assignments, conducting meetings with colleagues to find solutions to the problem, addressing the manager and objecting toward the work load collectively. Furthermore, they communicated more frequently about the work environmental issues and helped each other with the workload as well as supported each other emotionally when they expressed their frustrations.

The lab technicians' reaction toward the managerial barrier thereby seemed to be an intensification of trying to alter the working conditions by continuing addressing the management collectively, which we have chosen to label the collective alteration strategy.

The difference between the researchers and the lab technicians is described by one of the researchers:

“The researchers are not very good at talking about it (work related issues) generally. Therefore, those who are talking about our working conditions and upcoming changes are lab techs and assistants. We’ve just had a lot of focus on smoking breaks and such. This was debated lively among the lab techs and technicians, and as such, they work better as a group to acknowledge our framework and daily practicalities. The researchers don’t do that - consistently at least. Lab techs and assistants can easily go to our boss or our boss’ boss and get things straightened out. Always [...] they’re way better than us at dealing with these things collectively”.

This development of the coping practice among the lab technicians also seems to be linked to the cultural practice and social distribution of a specific goal of their work trajectories within this group.

Cultural characteristics of the lab technicians

Characteristic for the lab technicians is their focus on the community in the group and they seem to have developed a counter-culture to the management and the organization as a whole. The previously described cultural messages on busyness and performance were negotiated differently within the group of lab technicians as it had negative connotations to the group. Social representations within the group were *the well-being of each other* and *there is a life besides work*, which were messages that were distributed within the group through their daily conversations and used as an argumentation for addressing the management when they were talking about the extensive workload. One of the lab technicians explained how the well-being of colleagues affected her:

“When you can feel your colleagues get sad, then I think about it. I enter into at problem-solving mode, but how can you solve...well usually it is not possible, but you can talk about it. It can shed light on how it is”.

The workload and the experienced managerial barrier contributed to an increase in the frequency by which they talked about the workload as well as about the management. Thus, a collective sense of *‘something must be done’* was socially distributed among the lab technicians. In a group interview different statements were made in relation to the struggle and how to cope with it:

‘(...) we have to hold on and not give up’ and ‘(...) it is a battle and we have to take it. We have to have something to fight back with. We’re getting stressed because of it’

The lab technicians also seemed to have created an in-group out-group distinction between them and the researchers, which was articulated in their everyday conversations (*‘we are a team and help each other’* vs. *‘they handle things by themselves’*). The

in-group out-group distinction was often expressed when they talked about how to cope with the workload. One example is from an interview with one of the lab technicians who, when asked of their way of coping, compared their coping practice with that of the researchers:

“We have talked about it in the lab tech group that it is permitted to express that now we should not add more assignments because we are busy. And we accept that we say that to each other. I think that if it was a researcher who dared say that then I think he or she would feel left out in the researcher-group, because everyone else perform their work. So I do not think it is permitted to the same extent to say within the group of researchers”.

The in-group out-group distinction seems to mediate a certain understanding of how to cope within the group of lab technicians and through their daily conversations about this opposition seem to invite the lab technicians to a certain way of coping.

The rupture remained unresolved for the lab technicians as their ideals of how the work conditions should be, opposed the managerial attitude, which gradually developed an increasing opposition toward the management and the accumulated unresolved struggle fuelled their focus on altering their working conditions. This process created a cyclical process and an example of what Valsiner (2002) has termed a mutual-in-feeding strategy, which means that affections block the emergence of alternative ‘voices’ that could bring a positive value. Their negative outlook derived from the experience of not being listened to, rapidly grew into a feeling of distrust toward the management, which again blocked the emergence of alternative coping strategies that could alleviate their frustrations. The collective battle in itself developed into an additional stressor for the lab technicians and limited the access to alternative coping strategies.

Though observed in the large group of lab technicians, it was particularly in one of the social subgroups of the lab technicians (Lab tech 2) identified qualitatively and through the social network analysis, where the cyclical process was most characteristic. One of the reasons was that this group had an additional experience with the manager which will be described below and related to the development over time in the coping practice within this group.

The celebration

A month before T2, the department manager had decided that one of the members of the Lab tech 1 group was not allowed to join a celebration of a just ended research project because the employee was organizationally attached to subdivision A, but physically and socially, the employee was attached to subdivision B of which Lab tech 1 was part. The celebration was not so much of a rupture in the trajectories of work but the trajectories of the group were challenged. This event seemed to influence

The two subgroups are named ‘Lab tech 1’ and ‘Lab tech 2’. Lab tech 1 was situated at the ground floor and Lab tech 2 was situated at the first floor and they had different deputy managers, the same department manager and similar working conditions. Lab tech 1 consisted of six lab technicians, one secretary and one technician. They were placed in three different multi-person offices situated close to each other except from the secretary who was placed in a private office in another corridor. Lab tech 2 consisted of seven lab technicians, who were situated at two multi-person offices close to each other. Two lab technicians (ID 221 and ID 212) did not form part of this group.

This celebration seemed to bring Lab tech 1 closer together and increased their social communication. One of the lab technicians stated when asked about how the celebration had affected them socially.

“I just think that we’re more attuned to each other – and maybe it’s more acceptable to say it aloud if you’re feeling bad or if you need help. You want to take part, because you see how they’re helping [a colleague] – and you’re thinking that you could get help this way. It’s pleasant to think that people stand united, I think”.

The continuous struggle to alter the managerial decision seemed to make the Lab tech 1 go through different coping phases developing an increasing sense of giving up the attempt to cope over time. In the following section, we will visualize the development in the coping strategy behavioral disengagement within Lab tech 1 as well as the group differences in this coping strategy between the two social networks within the lab tech group.

Social distribution of giving up the attempt to cope

Figure 5 is a visualization of the non-work related communication (only most important), showing the same two subgroups of lab technicians with the frequency by which they report using the coping strategy behavioural disengagement displayed by the size of the node. The larger the symbol is, the more frequent a specific coping strategy is used. The sociogram at T2 visualizes the difference between the two groups and the lower use of behavioural disengagement in Lab tech 1 group. The sociogram at T3 visualizes how they resemble each other due to the increase in the use of the strategy by Lab tech 1.

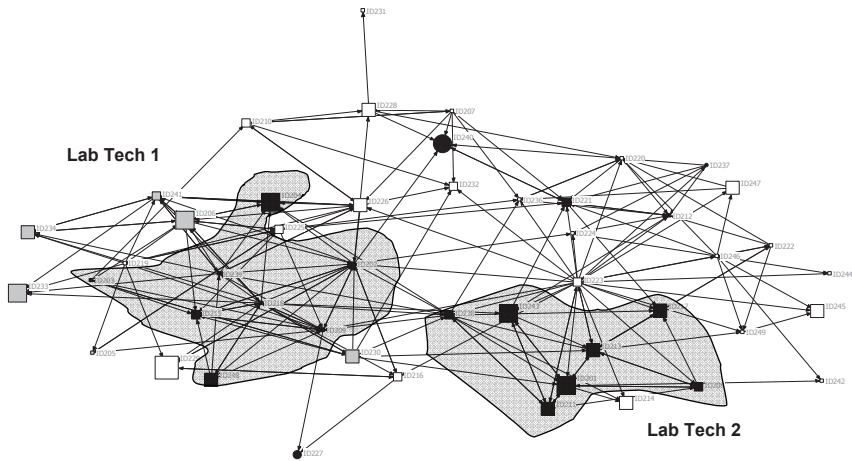


Figure 5. Behavioural disengagement at T2

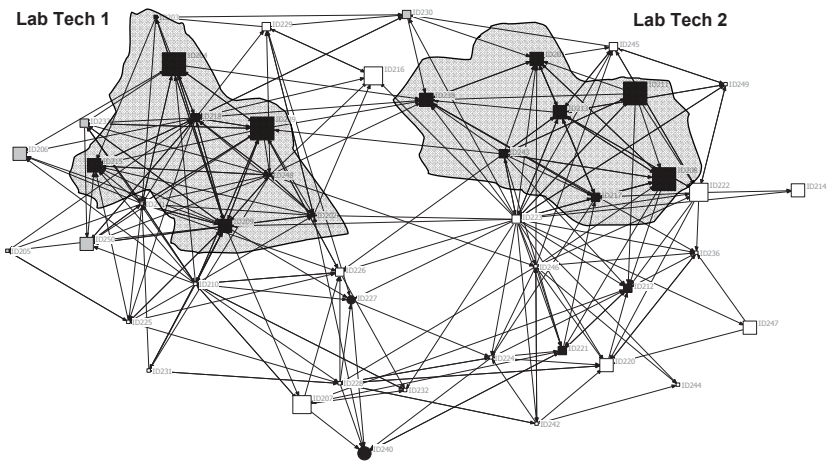


Figure 6 Behavioural disengagement at T3

Students' t-test indicate a significant difference ($p < .050$) as well as a large effect size $\omega^2 1.22$ between the two social subgroups of lab technicians at T2, where Lab tech 2 used behavioural disengagement to a higher degree than the Lab tech 1. At T3 Students t-test did not show a significant difference at T3 ($p < .411$) and looking at the mean scores it reveals that Lab tech 1 increased in the use of behavioural disengagement from T2 ($M = 1.37 / SD = .58$) and T3 ($M = 1.81 / SD = .84$). See table 10 and 11 below. The qualitative results showed that the celebration seems to make Lab tech 1 enter

through different phases or sequencing of how to cope. At T2 they were in a phase of *fighting* where they gathered at group meetings trying to solve the situation and tried in different ways to change the managerial decision which can explain the rather low use of behavioural disengagement as they were trying to alter the situation. After several attempts to change the managerial decision, they experienced that they were unable to change the decision. The phase of fighting was then supplemented by the phase of *storytelling*, which was characterized by talking about the frustrations they felt about the managerial decision supplemented with stories of similar negative experiences with the management, they each had experienced or had heard other experience. The phase of storytelling was subsequently supplemented by the phase of *giving up* which explains the increase in this strategy for lab tech 2 at T3. The experience of not being able to alter the managerial decision seemed thereby over time to enhance the use of behavioural disengagement and thereby giving up the attempt to cope.

Table 10 and 11 below show how the two social subgroups develop over time in the use of coping strategies and it shows that Lab tech 1 increase in especially instrumental support and also in venting from T2 to T3 which results in a significant difference in instrumental support between the two groups at T3 ($p < .048$) see table 11.

Coping strategies	Lab tech 1 Mean [SD]	Lab tech 2 Mean [SD]	Mean diff [95% CI]	Effect size d	p-value
Behavioural disengagement	1.37 [.58]	2.00 [.44]	0.62 [.001, 1.249]	1.22	.050
Self-distraction	2.06 [.62]	2.50 [.63]	0.45 [-.300, 1.175]	0.70	.221
Positive reframing	3.18 [.70]	3.16 [.68]	-0.02 [-.839, .797]	0.02	.957
Venting	2.62 [.69]	2.66 [.51]	0.04 [-.695, .778]	0.06	.904
Instrumental support	3.00 [.65]	2.91 [.80]	-0.08 [-.929, .763]	0.12	.834
Self-blame	2.62 [.74]	2.50 [.83]	-0.12 [-1.047, .797]	0.15	.773
Acceptance	3.00 [.57]	2.83 [.51]	-0.16 [-.840, .507]	0.31	.597
Active coping	3.50 [.59]	2.91 [.58]	-0.58 [-1.28, .113]	1.00	.093
Humour	2.68 [.92]	1.83 [.51]	-0.85 [-1.772, .063]	1.14	.065

Table 10. Group differences in coping between Lab tech 1 and Lab tech 2 at T2

Coping strategies	Lab tech 1 Mean [SD]	Lab tech 2 Mean [SD]	Mean diff [95% CI]	Effect size d	p-value
Behavioural disengagement	1.81 [.84]	2.14 [.62]	0.33 [-.509, 1.169]	0.44	.411
Self-distraction	2.50 [.65]	2.64 [.55]	0.14 [-.540, .826]	0.23	.659
Positive reframing	3.43 [.56]	3.21 [.63]	-0.22 [-.891, .445]	0.36	.483
Venting	2.87 [.69]	2.64 [.55]	-0.23 [-.941, .477]	0.36	.492
Instrumental support	3.56 [.67]	2.85 [.55]	-0.70 [-1.404, -.006]	1.15	.048
Self-blame	2.62 [.87]	3.07 [.53]	0.44 [-.379, 1.272]	0.62	.264
Acceptance	2.93 [.86]	2.91 [.73]	-0.02 [-.977, .935]	0.02	.963
Active coping	3.50 [.53]	2.78 [.69]	-0.71 [-1.402, -.025]	1.17	.043
Humour	2.75 [1.06]	1.78 [.39]	-0.96 [-1.890, -.037]	1.21	.043

Table 11. Group differences in coping between Lab tech 1 and Lab tech 2 at T3

DISCUSSION

The aim of the study was to explore the distributed nature of coping and the overall results indicate that specific ways of coping are socially distributed among employees due to organizational, cultural and managerial characteristics.

We wanted more specifically to explore how and why formal and informal group differences in coping within one department emerged and developed. The quantitative and qualitative results indicate that there are formal and informal group differences in coping within the department. Within the two formal groups, these differences developed over time in the direction of an increased polarization, where the researchers engaged in individualist adjustment oriented strategies and the lab technicians engaged in collective alteration-oriented strategies.

The qualitative part of the study revealed how a managerial barrier toward changing the working conditions seemed to strengthen the cultural characteristics in the two formal groups and polarize them further in their way of coping. The researchers and the lab technicians had developed different goals related to their work trajectories, which could explain why the two groups engaged in different coping practices. The results also showed that a managerial barrier toward changing a management decision

affected one of the social subgroups of the lab technicians, which led to a specific development over time in the coping practice within the group.

The results supplement the much debated dispositional-situation coping dichotomy inherent in the coping research (Moos & Holahan, 2003). The results contrast the perspective on coping as a strategy, which is stable over time and across situations (Carver & Connor-Smith, 2010) as this study shows how the different groups develop in their coping practice over time due to specific contextual influences. The results also challenge the view that coping varies according to the type of stressor experienced. Our findings indicate that the stressor – the managerial barrier – was negotiated differently in the two groups and they engaged in different ways of coping due to their different cultural goals, which indicate that social and cultural processes are central in understanding coping practices. Furthermore, it indicates that coping is not just a reaction toward a stressor but is related to the future-oriented goals of the individuals or groups.

Our findings also suggest that when observed over time one of the subgroups of lab technicians engaged in a sequencing of coping strategies. The subgroup of lab technicians went through different coping phases from trying to change the situation, to expressing emotions and finally to giving up the attempt to cope, which opposes the view of a simple relationship between a stressor and a specific form of coping.

Hence the results transcend the notion of coping being either a personality feature or influenced by a specific stressor as the results point to the importance of social and cultural processes embedded in a specific work environmental context when addressing and understanding human coping practice.

The results also supplement the often used distinction between emotion-focused and problem-focused coping (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984). Despite a current debate on how to categorize coping strategies (Skinner, Edge, Altman, & Sherwood, 2003) coping patterns are mainly assessed through the distinction between emotion-focused and problem-focused strategies (Folkman & Moskowitz, 2004). The emotion-focused coping refers to ameliorating the negative emotions associated with the problem and problem-focused coping refers to addressing the problem causing distress. This study showed that one of the groups, the lab technicians, used a combination of problem-focused and emotion-focused coping strategies. Furthermore, it showed that the group of researchers primarily used a problem-focused approach but it entailed an adjustment-based or compensatory practice, which is a coping practice that has not been approached within the coping research (Brandtstädter & Renner, 1990). These results suggest that a distinction between an adjustment-oriented and alteration-oriented coping practice is more appropriate within an organizational context. This point is also made by Astvik & Melin (2013) and their results are in line with the result of this study. Through extensive empirical research, they found a similar distinction between coping practices, which they term: *compensatory and*

quality reducing, voice and support seeking and self-supporting. The compensatory and quality reducing strategy refers to individuals working more hours, increasing the pace of work, reducing the quality of their work etc. and voice and support seeking refers to objecting when the workload was too excessive, seeking help and support from supervisors and colleagues and actively try to find solutions to problems in the work group. The self-supporting strategy refers to only using few coping strategies and appeared self-supporting.

The findings of the compensatory and quality reducing strategies and voice and support seeking strategies are in line with this study's findings of the individualist adjustment strategy and collective alteration strategy, which were characteristic for the researchers and lab technicians/technicians respectively. A distinction between adjustment and alteration in coping is developed in studies of aging (Brandstädter & Renner, 1990) and studies of children's coping strategies (Rudolph & Hammen, 1995). In these studies, distinctions have been made between assimilation and accommodation (Brandstädter & Renner, 1990) and a distinction between efforts to influence objective events vs. efforts to maximize ones fit with the current situation (Rudolph & Hammen, 1995). However further research ought to be made within the area of work and organizational psychology as this study as well as the study of Astvik and Melin (2013) point to specific ways of coping that seem especially characteristic for being in a work context. The current distinction between problem-focused and emotion-focused coping provides little information about the actual coping behaviour at work. E.g., the use of active coping, which belong to the problem-focused dimension is performed differently in the group of researchers and in the group of lab technicians where the active coping strategies applied by the researchers were adjustment-based strategies and active coping within the group of lab technicians were alteration-based strategies. This is an important difference and entails important information, which is ignored when applying traditional coping distinctions and measurements.

Astvik & Melin (2013) found that the compensatory and quality reducing strategy was related to the development of stress. This study showed that the researchers decreased in perceived stress while intensifying their use of the individual adjustment-oriented coping practice. Furthermore, the study also showed that the lab technicians increased in perceived stress over time while intensifying the use of the collective alteration-based coping practice. One of the explanations could be that the socially shared goals within the two groups have an impact on whether a stressor is perceived as stressful. The barrier toward altering the work conditions had a well fit with the performance-based goal of the researchers while the managerial barrier had a poor fit with the goal of well-being of the lab technicians. The study thereby indicates that the collective alteration-strategy also are related to stress if it is combined with at non-supporting management practice.

LIMITATIONS

The results of this study should be seen in the light of the following limitations:

As the goal of this study is to perform a multi-method study of a previously unexplored process, there is an obvious trade-off between depth vs breadth. With our single case design and relatively small sample size, it is difficult to make conclusive inferences and generalize our findings. Therefore, we urge other researchers to explore the generalizability of our findings in other settings, namely in a non-Scandinavian context and in other settings than R&D-departments.

Another possible limitation is the 6-month period between our measurements, as this timeframe might be too long to capture the smaller changes in employee perception of their coping mechanisms. As we have been able to do a qualitative study alongside the quantitative measurements, however, this limitation does not detract from the validity of our analysis and conclusion, but should be kept in mind for future research. Finally, there is also a challenge to expand the knowledge about the interplay between coping strategies and work environment factors that may restrict the individuals and groups scope of action.

Implications for practitioners

The role of managers seems particular important in this study as the experienced managerial barrier seems to have implications for group behaviour as well as for their coping practice.

Furthermore, our findings reinforce the trend toward exploring stress as a collective process rather than solely an individual issue. For managers, this means a need to understand the employees' reaction to stress and their coping strategies in the context of the social dynamics present in the organization.

CONCLUSION

In this paper, we have empirically examined the distributed nature of coping in both formal and informal group within one department. Thus, we have expanded the extant research on coping by identifying how choice of coping strategies on stressful work conditions are not just made by individuals, but are also choices made in the specific organizational and social contexts, the employees are embedded in.

REFERENCES

Allvin, M. 2008. New rules of work: Exploring the boundaryless job. In K. Näswall, J. Hellgren, & M. Sverke (Eds.), *The individual in the changing working life*, pp. 19-45. Cambridge, UK: Cambridge University Press.

Astvik, W. & Melin, M. 2013. Coping with the imbalance between job demands and resources: A study of different coping patterns and implications for health and quality in human service work. *Journal of Social Work*, 13(4), 337-360.

Berghuis, J. P. & Stanton, A. L. 2002. Adjustment to a dyadic stressor: A longitudinal study of coping and depressive symptoms in infertile couples over an insemination attempt. *Journal of Consulting and Clinical Psychology*, 70(2), 433-438.

Borgatti, S. P. 2002. *NetDraw: Graph Visualization Software*. Harvard: Analytic Technologies.

Borgatti, S. P., Everett, M. G., & Johnson, J. C. 2013. *Analyzing social networks*. Los Angeles, CA: SAGE Publications.

Bowling, N. A., Beehr, T. A., & Swader, W. M. 2005. Giving and receiving social support at work: The roles of personality and reciprocity. *Journal of Vocational Behavior*, 67(3), 476-489.

Brandtstädter, J. & Renner, G. 1990. Tenacious goal pursuit and flexible goal adjustment. *Psychology and Aging*, 5(1), 58-67.

Browner, C. H. 1987. Job stress and health: The role of social support at work. *Research in Nursing & Health*, 10(2), 93.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. 1989. Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267-283.

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief COPE. *International Journal of Behavioral Medicine*, 4(1), 92-100

Carver, C. S. & Connor-Smith, J. 2010. Personality and coping. *Annual Review of Psychology*, 61(1), 679-704.

Cohen, J. 1969. *Statistical power analysis for the behavioral sciences*. New York: Academic Press.

Cohen, J. 1988. *Statistical power analysis for the behavioral sciences* (2nd ed. ed.): Lawrence Erlbaum Associates, Publishers.

Cohen, S., Kamarck, T., & Mermelstein, R. 1983. A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385-396.

Cohen, S. & Williamson, G. 1988. Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of health: Claremont Symposium on applied social psychology*, pp. 31-67. Newbury Park, CA: Sage.

Connor-Smith, J. K. & Flachsbart, C. 2007. Relations between personality and coping: a meta-analysis. *Journal of Personality and Social Psychology*, 93(6), 1080-1107.

de Mattos, E. & Chaves, A. 2013. Semiotic regulation through inhibitor signs: Creating a cycle of rigid meanings. *Integrative Psychological and Behavioral Science*, 47(1), 95-122.

DeLongis, A. & O'Brien, T. 1990. An interpersonal framework for stress and coping: an application to the families of Alzheimer's patients. In M. A. P. Stephens, J. I. T. Crowther, S. E. Hobfoll, & D. L. Tennenbaum (Eds.), *Stress and coping in later-life families*, pp. 221-239. Washington, DC: Hemisphere.

Dewe, P., Leiter, M., & Cox, T. 2000. *Coping, health and organizations*. London, UK: Taylor and Francis.

Dewe, P. & Trenberth, L. 2004. Work stress and coping: Drawing together research and practice. *British Journal of Guidance & Counselling*, 32(2), 143-156.

Dick, P. 2000. The social construction of the meaning of acute stressors: A qualitative study of the personal accounts of police officers using a stress counselling service. *Work & Stress*, 14(3), 226-244.

Etzion, D. 1984. Moderating effect of social support on the stress-burnout relationship. *The Journal of applied psychology*, 69(4), 615-622.

Folkman, S. & Moskowitz, T. J. 2004. Coping: Pitfalls and Promise. *Annual Review of Psychology*, 55(1), 745-774.

Geertz, C. 1973. *Thick Description: Toward an Interpretive Theory of Culture*, The Interpretation of Cultures: Selected Essays, pp. 3-30. New York, NY: Basic Books.

Gil, K. M., Wilson, J. J., & Edens, J. L. 1997. The stability of pain coping strategies in young children adolescents, and adults with sickle cell disease over an 18-month period. *The Clinical Journal of Pain*, 13(2), 110-115.

Harkness, A. M. B., Long, B. C., Bermbach, N., Patterson, K., Jordan, S., & Kahn, H. 2005. Talking about work stress: Discourse analysis and implications for stress interventions. *Work & Stress*, 19(2), 121-136.

Hewitt, P. L. & Flett, G. L. 1996. Personality traits and the coping process. In M. Zeidner & N. S. Endler (Eds.), *Handbook of coping. Theory, research, application*. New York, NY: John Wiley & Sons.

Hutchins, E. 1995. *Cognition in the wild*. Cambridge, Mass.: MIT.

IBM. 2012. IBM SPSS *Statistics for Windows*, 21 ed. Armonk, NY: IBM Corp.

Kinman, G. & Jones, F. 2005. Lay representations of workplace stress: What do people really mean when they say they are stressed? *Work & Stress*, 19(2), 101-120.

Kirkegaard, T. & Brinkmann, S. In press. Rewriting stress: Toward a cultural psychology of collective stress at work. *Culture and Psychology*.

Kristensen, T. S., Hannerz, H., Høgh, A., & Borg, V. 2005. The Copenhagen Psychosocial Questionnaire: A tool for the assessment and improvement of the psychosocial work environment. *Scandinavian Journal of Work, Environment & Health*, 31(6), 438-449.

Lansisalmi, H., Peiro, J. M., & Kivimäki, M. 2000. Collective stress and coping in the context of organizational culture. *European Journal of Work and Organizational Psychology*, 9(4), 527-559.

Lazarus, R. S. & Folkman, S. 1984. *Stress, appraisal, and coping*. New York, NY: Springer Pub. Co.

Lewig, K. A. & Dollard, M. F. 2001. Social construction of work stress: Australian newsprint media portrayal of stress at work, 1997–98. *Work & Stress*, 15(2), 179-190.

Marsden, P. V. 1990. Network data and measurement. *Annual Review of Sociology*, 16, 435-463.

Mattlin, J. A., Wethington, E., & Kessler, R. C. 1990. Situational determinants of coping and coping effectiveness. *Journal of Health and Social Behavior*, 31(1), 103-122.

Mehrabian, A. & Epstein, N. 1972. A measure of emotional empathy. *Journal of Personality*, 40(4), 525.

Moos, R. H. & Holahan, C. J. 2003. Dispositional and contextual perspectives on coping: Toward an integrative framework. *Journal of Clinical Psychology*, 59(12), 1387-1403.

Nes, L. S. & Segerstrom, S. C. 2006. Dispositional optimism and coping: A meta-analytic review. *Personality and Social Psychology Review*, 10(3), 235-251.

Paoli, P. & Merllié, D. 2001. *Third European survey on working conditions 2000*. Dublin, Ireland: European Foundation for the Improvement of Living and Working Conditions.

Pejtersen, J. H., Kristensen, T. S., Borg, V., & Bjorner, J. B. 2010. The second version of the Copenhagen Psychosocial Questionnaire. *Scandinavian Journal of Public Health*, 38(3 Suppl), 8-24.

Pienaar, J. 2008. Skeleton key or siren song: Is coping the answer to balancing work and well-being. In K. Näswall, J. Hellgren, & M. Sverke (Eds.), *The Individual in the Changing Working Life*. Cambridge, UK: Cambridge University Press.

Rudolph, K. D. & Hammen, C. 1995. Cognitive representations of self, family, and peers in school-age children: Links with social competence and sociometric status. *Child Development*, 66(5), 1385-1402.

Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. 2003. Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin*, 129(2), 216.

Strauss, A. & Corbin, J. 1997. *Basics of qualitative research: Grounded theory procedures and techniques* (20. printing ed.). Newbury Park, CA: Sage.

Valsiner, J. & van der-Veer, R. 2000. *The social mind: Construction of the idea*. Cambridge, UK: Cambridge University Press.

Valsiner, J. 2002. Forms of dialogical relations and semiotic autoregulation within the self. *Theory & Psychology*, 12(2), 251-265.

Valsiner, J. 2003. Beyond social representations: A theory of enablement. *Papers on Social Representations*, 12, 7.1-7.16.

Valsiner, J. 2007. *Culture in minds and societies: Foundations of cultural psychology*. Los Angeles, CA: SAGE Publications.

Wasserman, S. & Faust, K. 1994. *Social network analysis: Methods and applications*. Cambridge, UK: Cambridge University Press.

Willert, M. V., Thulstrup, A. M., Hertz, J., & Bonde, J. P. 2009. Changes in stress and coping from a randomised controlled trial of a three-month stress management intervention. *Scandinavian Journal of Work Environment and Health*, 35(2), 145-152.

Zimmerman, S. & Applegate, J. L. 1994. Communicating social support in organizations. In B. R. Burleson, T. L. Albrecht, & I. G. Sarason (Eds.), *The communication of social support*, pp. 50-70. Thousand Oaks, CA: Sage.

Zittoun, T., Duveen, G., Gillespie, A., Ivinson, G., & Psaltis, C. 2003. The use of symbolic resources in developmental transitions. *Culture & Psychology*, 9(4), 415-448.

CHAPTER 10: GENERAL DISCUSSION: CONCLUSION, REFLECTION AND IMPLICATION

10.1. OVERALL CONCLUSIONS

Throughout this project I sought to answer how appraisal and coping processes are related to cultural processes within an organizational context, why distinct appraisal and coping practices emerge in a particular organizational context, and how they develop over time.

Through theoretical developments and empirical descriptions, I have argued that people employ their material and social surroundings to support, share, and undertake aspects of the cognitive processes inherent in the interpretation of working conditions and ways of acting in relation to them. The study has shown contextualized variations in understanding stress, interpreting work experiences, and acting. The study thus represents an ideological shift in the view of coping from a purely psychological and isolated phenomenon to a distributed, situated, and dialogical process.

The main point to be taken from this study is that stress is deeply embedded in the material and social environment which in different ways enable or scaffold specific ways of interpreting events in the work environment and distinct ways of acting within it. This embeddedness and distributed nature of stress is reflected in: 1) a variety of material and social resources and barriers inherent in the working environment, which shapes certain ways of appraising specific working conditions and distinct ways of coping with them. 2) Social practices (informal and formal groups) within the working environment have different access to how to appraise the working conditions and how to cope with them and differ in their negotiation of distinct appraisal and coping practices. 3) The different coping practices are characterized by an individualistic adjustment-oriented coping practice vs. a collective alteration-oriented coping practice. 4) A non-supportive management practice seems to strengthen these social and cultural practices and reinforce a less flexible coping pattern over time.

In relation to traditional stress research, this study points to the need to look at the work environment as a whole instead of solely at specific risk factors. The results of this study indicate that stress does not develop owing to only one or multiple risk factors; rather, a variety of resources and barriers inherent in the working environment influence how these risk factors are appraised and coped with. Furthermore, stress cannot be approached solely as an individual appraisal and process; this process is

scaffolded and enabled through the social and material environment.

The main point to be taken from chapter 7 is that the stress process seems deeply embedded in the social and material world and that existing theories about stress cannot grasp the social and physical embeddedness of the stress process because they operate with an alleged gap between the individual and the environment. Therefore, I argued, it is meaningful to develop a theoretical perspective that from the outset, in its philosophical and epistemological foundation, has an understanding of individuals and their mental processes as embedded in a physical and social environment. The main contribution of this chapter is the tentatively invoked concept of *distributed appraisal and coping* as a way of emphasizing the situated, dialogical, distributed, and extended nature of stress, as well as the idea that a cultural-psychological understanding of stress can bring us new knowledge about the appraisal and coping process because this understanding is related to the ecology – the landscape of material artifacts and social relations that invite employees to appraise situations in a certain way and afford using certain coping strategies rather than others.

In chapter 8 the empirical findings from the qualitative part of the study on the distributed nature of stress were reported through the introduction of a metaphor to map the landscape of material artifacts and social relations and analyze the environmental constraints and enabling of appraisal and coping. The aim was to look at the broader social and material system that helped define work environmental problematic conditions, define how to appraise them, and determine what tools and resources were available for coping. Two main points can be taken from these findings. (1) The professional groups differed in their appraisal and coping practice due to a different environmental access to ways of interpreting their working conditions and coping with them, and hence they moved within different appraisal and coping landscapes. (2) Aspects of the material and social environment, singly or together, enabled or constrained different interpretations and actions and the social use of these cultural resources in distributed, distinct appraisal and coping practices.

In chapter 9 I described the empirical findings from the mixed methods approach. The quantitative part of the study indicated significant differences in coping between the formal and informal groups as well as an increasing polarization in coping practice between the two formal groups. The qualitative part of the study revealed that the polarization seemed to be due to a specific management practice that created barriers to the employees' attempt to alter their working conditions in order to reduce their workload. Due to cultural goals within the two social practices, the employees in the two groups negotiated the managerial barriers differently which strengthened the two groups' coping practice in the direction of an individualized adjustment-oriented and a collective alteration-oriented coping practice. The influence of the management practices on the informal groups was also apparent as one of these subgroups developed in their coping practice over time due to experiences with the management. These results point to the social embeddedness of coping as well as the

influence of a non-supportive management practice on social practices and how this management practice can reinforce a less flexible coping pattern over time.

10.1.1. RESEARCH QUESTIONS

Based upon these general findings, I am able to articulate an answer to my **first** research question regarding how appraisal and coping processes are related to cultural processes within an organizational context.

The qualitative data show that the appraisal and coping processes are related to cultural processes in the sense that the cultural processes offer employees opportunities to appraise and cope in a certain way through materially and socially mediated and distributed processes. The appraisal and coping processes are thus culturally embedded and distributed processes that cannot solely be understood as individual processes. The employees actively choose specific ways of appraising and coping through social and material suggestions of how to think and act as well as through their personal culture and concurrently they affect their surroundings through their actions.

Based upon the results, I am also able to answer my **second** research question regarding why specific appraisal and coping practices emerge in a particular organizational context.

The qualitative data indicated that the specific appraisal and coping practices seemed to have emerged owing to their embeddedness in a particular social, cultural, work environmental, and physical context. Distinct appraisal and coping practices were characteristic for different formal and informal subgroups of the department. The formal professional groups differed in their appraisal and coping practice because of a different environmental access to ways of interpreting their working conditions and coping with them, and hence they moved within different appraisal and coping landscapes. These landscapes afford different kinds of action, and the actions taken by the actors simultaneously affect the landscapes. The complex dynamics of the different contextual aspects that were made manifest in collective activities thereby scaffolded and framed the employees' thoughts and actions in relation to stress. The researchers were primarily placed in private offices, their work was individually organized, their work tasks were specialized and their cultural practice was characterized by reproducing the cultural messages on the importance of being busy which invited the researchers to engage in a more individual oriented appraisal and coping practice.

The lab technicians and technicians on the contrary were primarily placed in multiperson offices, their work was organized in a way where they collaborated on different tasks, their work tasks were similar and their cultural practices were characterized by opposing the cultural messages on busyness. These physical, work

organizational and cultural characteristics scaffolded a more collective oriented appraisal and coping practice.

The different environmental access to specific ways of thinking and acting thereby seemed to shape certain cultural and social practices within the groups and different cultural goals of the groups emerged which influenced how the two groups negotiated a managerial barrier toward reducing the work load. The managerial barrier thereby seemed to polarize and strengthen the appraisal and coping practices further.

Hence, a complex relationship between characteristics in the environment combined with a direct managerial barrier seemed to contribute to the emergence of a specific appraisal and coping practice.

And last, the results can also answer the **third** research question about how the appraisal and coping practices develop over time?

The qualitative data indicate that the two formal groups have different appraisals of the working conditions. The researchers had a dual appraisal of the working conditions where they both appraised busyness as a threat toward their wellbeing, but also appraised busyness as something they ought to strive for. Over time they increased in their appraisal of busyness as something they ought to strive for

The lab technicians had an appraisal of busyness as a threat to their wellbeing which seemed to be strengthened over time and accumulated into an unresolved struggle.

The quantitative and qualitative data showed that there were significant group differences in coping practices which were characteristic for both informal and formal groups and that these coping practices developed over time. The two formal groups polarized over time in the direction of the individual adjustment-oriented strategy and the collective alteration-oriented strategy. The researchers increasingly used the individual adjustment-oriented strategy by working more extensively, more efficiently, by increasing the work pace and by reducing the quality of work. Simultaneously, they decreased in the attempt to alter their working conditions and decreased in their use of social support. The lab technicians increasingly used the collective alteration-oriented strategy by cooperating to alter the working conditions, expressing frustrations to colleagues, and getting emotional and instrumental support from colleagues.

This development seemed to make the two groups fixated in individual and collective coping strategies respectively and it developed into an inflexible coping practice. While the quantitative data indicated that the researchers decreased in perceived stress while intensifying their use of the individual adjustment-oriented coping practice, the data also showed that the lab technicians increased in perceived stress over time while intensifying the use of the collective alteration-oriented coping practice. One of the explanations could be that the socially shared goals within the two groups have

an impact on whether a stressor is perceived as stressful. The barrier toward altering the work conditions had a well fit with the performance-based goal of the researchers while the managerial barrier had a poor fit with the goal of well-being of the lab technicians. The study thereby indicates that the collective alteration-oriented strategy also are related to stress if it is combined with a non-supporting management practice. The informal groups differed because one group had had a specific experience with the management. This group went through a sequencing of coping, beginning with cooperative efforts to change the managerial decision, to storytelling, to giving up the attempt to cope.

10.2. PRAGMATIC CONSIDERATIONS

10.2.1. DO WE JUST MAKE STRESS UP?

In accordance with the pragmatic epistemological foundation of this study, it is necessary to address the questions of the practical consequences of this perspective on stress. Within this line of thought, the truth of a statement or belief is to be found in its consequences or use value, so an important question in this respect is: If people are offered a new way of understanding stress, what consequences does it have for their lives? As argued in chapter 1, the different definitions of stress enter into people's ways of understanding their experiences at work and how they choose to react to them, which is why it is important to address how this perspective could affect people's perceptions and reactions within a working context.

When I have held lectures about this subject, a comment I often have received is that I reduce problematic working conditions to social and cultural processes. One woman came up to me after a lecture and said, *"Wow, your lecture is provocative – I get all afraid. You are saying that we make stress up!"*

This comment reflects a reduction of the cultural-psychological and distributed perspective to that of the social constructionist perspective. What characterizes the social constructionist perspective is its interest in how ideas and beliefs are shaped through discourses and communicative practices independent of the actual actions and material surroundings of the individual. The reality, so to speak, is thereby reduced to the individual's or group's self-constructed beliefs and ideas. The cultural-psychological and distributed perspective on stress views the cognitive processes or meaning-making processes not as solely socially constructed but as embedded in all the different aspects of the working environment. People's lives are not just socially constructed, but social constructions also emerge from people's lives. Our social negotiations of stress are scaffolded by the physical and work environmental aspects just as much as our physical environment and work environmental practices are scaffolded by the social negotiations and the historical shaping of these physical

structures and tools. As implied by Vygotsky (Valsiner & Van der Veer, 2000) and Valsiner (2007), our thoughts and actions have a social origin before we internalize them, not in the sense that they are socially constructed but because of the historical social shaping and use of our semiotic and physical environment.

In this theoretical perspective, stress is both discursive and material. For example, the way the employees perceive busyness is scaffolded by historical technological innovations, such as the computer calendar; the historically developed tools inherent in Lean or the architecture of the office landscape affords certain way of thinking about the working conditions. At the same time, the societal and local discourses of busyness are socially negotiated in the different communicative practices that offer distinct ways of perceiving busyness. In this perspective our development of stress is inherent in the historical shaping of our society, not only the development of the material surroundings but also the historical development of different understandings of stress and why we develop stress, which offers us ways of understanding and coping with stress. The process of the social negotiations of societal stress discourses draws attention to the importance of which definitions of stress we offer people, because the understandings of stress also seem to contribute to the way people choose to cope (Newton, 1989; Wainwright & Calnan, 2002). In this study we saw a distinct difference between the researchers and the lab technicians in their definitions of stress; the researchers understood stress as something that was partly due to personality, and they thus focused on their own responsibility to cope with stress whereas the lab technicians to a larger extent viewed stress as due to working conditions, and they thus initiated cooperative actions.

Furthermore, the different communicative practices are also developed in combination with each individual's personal history and idiosyncratic ways of acting, which enter into a co-constructing dynamic where our ways of appraising and coping with our working conditions are reproduced and altered over time through our actions within these practices.

So in this perspective, we do not just make stress up, but our way of understanding stress, perceiving our working conditions, and coping with them is developed in a complex reciprocal interplay between our personal history and the social and material world. Our surroundings scaffold specific practices of relating to our work environment, which in combination with our personal history guide us to think and act in specific ways.

This perspective do not deny that stress exists, but the interest is in how we choose to address stress, perceive stress, or act in relation to stress, guided and scaffolded by our surroundings. And this is why it is important to address our ecological surroundings with its inherent definitions of stress. The substance of stress thus comprises all objects, thoughts, and principles that either promote or adversely affect the continuity of appropriate action.

10.2.2. WHAT DOES THIS STUDY ADD?

The concept of distributed appraisal and coping has pragmatic value because it invokes an understanding of stress as a process that is deeply embedded in a variety of factors within the working environment, not just specific risk factors. It can thereby broaden our perspective and move us toward a reflective process about the resources and barriers that we face in our working environment and that we constantly are negotiating and reshaping.

The concept invokes the question of why people perceive their working conditions and act according to them as they do. This question broadens the focus from a single linear relationship between work environmental factors or individual factors and the development of stress to also encompass the societal and work environmental surroundings and their characteristics. Furthermore, it broadens the focus to include the individual and social negotiations of these factors and their different forms within a work practice.

It provides individuals with the possibility to reflect upon their own actions in combination with the ecological structure of the working environment, what their actions signal to other people, and how their actions are used by other people. Does it afford specific ways of acting with colleagues, or does it limit other ways of acting? And it broadens reflections beyond one's own activity to the embeddedness of that activity. It could also cause us to consider the way stress is understood at the workplace and in different communicative practices.

This perspective does not contribute to a passive subject being affected by stress owing to work environmental risk factors (Wainwright & Calnan, 2002), nor does it contribute to a responsible subject (Donnelly & Long, 2003), who causes the stress and at the same time is responsible for coping. Rather, it contributes to a reflective subject embedded in and reproducing the communicative practices that invite the individual into a specific way of relating to the surroundings. The focus on the nondetermining aspect of the surroundings helps individuals to not take a passive position and to reflect upon how they reshape their surroundings through their actions and interpretations. The focus on the embeddedness in the social and material world helps individuals to not adopt a responsible position because it helps them understand their actions through not only the personal constitution but also the social and material aspects of the environment. This strategy could be labeled reflective coping.

The perspective also allows for new ways for workplaces to address stress. It shows how the organizational discourse on stress enters into people's understandings and actions in relation to stress and how they are negotiated differently in different subgroups with different consequences.

This perspective encourages the workplace to not mistake the properties of a complex working environment for the properties of individual minds. Failed coping strategies

will thereby not only be addressed to the individual but a focus will also be at barriers and resources for coping within the socialcultural system. The perspective could also lead to different restructurings of the work organization or the physical environment to create a more flexible environment for coping. It could promote a focus on other aspects of the working environment than just specific stressors and help work places and employees to reflect upon the working environment as a whole. Furthermore, this perspective emphasizes that managers also could be aware of how the specific barriers for coping they create can affect group developments and enhance cultural characteristics.

10.2.3. A PERSPECTIVE OF CULTURE: THE SOCIOMATERIAL WORLD

The perspective on culture as entailing a material component in conjunction with a semiotic component is relatively new, as also emphasized by the description of the material turn in chapter 3. The material turn has led to a larger debate on whether material surroundings shape thought and actions or whether they are just a passive container of culture – the semiotic characteristics (Olsen, 2006). The material turn has made us more aware of the inseparability of people and things and the relevance of the material world in shaping our cultural and psychological experience. The research area regarding how these components are interrelated and how they enter into people's thoughts and actions, is new and requires attention. This study has addressed this cultural understanding in different ways. In chapter 7 examples of semiotic and material mediation and distribution of appraisal and coping were provided separately. Chapter 8 provided an analysis of how the different aspects of the context singly and together, invite individuals to appraise and cope with the environment in distinct ways. Psychologists interested in material culture have often focused on explicit cognitive or mnemonic technologies and artifacts – maps, computers, compasses (Gonzales-Ruibal, 2013). Here I have tried to show that other types of cultural objects also are involved, such as blackboards, architecture of offices, bottles, and frames.

But how is this interrelatedness of the semiotic and material tools to be understood, and are these tools interrelated in different ways?

With a point of departure in externalism, I argued and exemplified in chapter 7 and chapter 8 that materiality has agency and that things and people are to be understood as inseparable, which thereby also counts for the discursive and material aspects of the environment. In their interrelatedness, the semiotic and material tools can thus be seen as aspects of the same reality and can be more or less present in individuals' embeddedness in the world. In this study the interrelatedness of the different aspects of the work environment and actions of the individual resembled the system of interrelated representational modes described by Hutchins (1995) in the sense that each intrinsic

or extrinsic representational mode in conjunction constituted a distributed system of thought and action. But the study also pointed to a hierarchical, mediating, and oppositional interrelatedness.

There were examples of how the semiotic tools had a different priority when specific material tools became available. For example, the new way of organizing the work combined with the artifact of the blackboard contributed to the group's talking less about busyness. In this case the semiotic and material tools were interrelated in the sense that the material tools had primacy compared to the semiotic tools in the distribution of busyness. Another example exemplifies the mediating character of the physical environment where the multiperson offices gave way to local negotiations of the stress discourse. This shows how materiality promotes social and individual action. There were also examples of how the semiotic tools mediated material tools. The individualistic stress discourse mediated specific self-management techniques, and the discourse was not just language and words but also material practices (self-management techniques) that mediated the individuals' relationship to themselves. The oppositional interrelatedness was characterized by the semiotic and material tools opposing each other. An example is when the social relations gave way to coping in order to help each other and busyness was a barrier to helping each other. This created difficult-to-reconcile systems of representation.

The different kinds of interrelatedness do not reflect an interaction as such but as a way of coinciding as aspects of the same reality. It would be interesting to explore more thoroughly how the different ways they interrelate affect the individual. This has not been fully developed or illuminated in this thesis but points to questions that could be raised in future studies.

10.3. WHAT DOES THIS STUDY ADD TO STRESS RESEARCH?

In chapter 2 I addressed the historical development of the cognitive understanding of stress. One of the main points from this chapter was the argument that the subjugated knowledge types derived as oppositions from the main assumptions inherent in the theory of Lazarus have not been addressed adequately in the succeeding research. These knowledge types were the situation as a whole, optimization of others, contextual differences in coping, linking environmental features to coping, collective coping, alteration of the context, and accumulated processes of coping.

These knowledge types are reflected in the three articles, but in this section I address each of them briefly.

A new conceptualization of situation. In chapter 2 a historical exploration of the development of the cognitive understanding of stress emphasized that the focus on

one single situation, characterized as one fixed situation and stressor, was derived from the focus on soldiers' experiences from the battlefield. The succeeding line of research within coping followed a reductionist understanding of situation because focus was primarily on a certain event as a condition for the appraisal and coping process or on a specific stressor influencing the coping practice (Carver & Connor-Smith, 2010). Situation was thereby reduced to a single event or a feature of the environment significant only because it is appraised as stressful. Within this study, situation is conceptualized not as a single event but as a certain part, phase, or special aspect of the surrounding and experienced world (Cole, 2003). Situation is, within this study, thus broadened to encompass the sociomaterial world that specific events form part of.

Optimization of others was derived from the opposition of the optimization of the individual. The social interaction between the lab technicians in both departments showed how the optimization of others was an important factor in their coping practice. The lab technicians in the research unit furthermore expressed that the lack of well-being of colleagues was experienced as stressful and something they had to cope with together.

The contextual differences in coping were addressed through the group differences in coping, which were explained by the variety of interrelated contextual factors that gave different access to coping and appraisals for the different groups.

This study emphasized that stress is typically experienced and managed individually and in social and cultural practices. And the way people experience and manage stress is through social negotiations of the cultural messages or discourses available and the physical work environmental landscape they act within.

Alteration of the contest and collective coping. Theorizing about appraisal and coping as a social and material process also has implications for the kind of measurements used. The qualitative part of this study added richness to the Brief COPE Questionnaire (Carver, 1997) by enhancing the meaning of the active coping scale to encompass both adjustment and alteration. This distinction resembles that between assimilative and accommodative coping made by Brandstädter and Renner (1990). The active coping scale in the Brief COPE Questionnaire alone does not distinguish between adjusting to the work environment and trying to alter the working conditions, which seemed highly relevant in this study. Furthermore, the Brief COPE Questionnaire did not directly measure interactive and cooperative coping efforts, such as collective coping strategies. Since these distinctions seemed highly relevant to the study, the addition of qualitative data addresses this issue.

Brandstädter and Renner (1990) argued, based on their results, that the motivational background of accommodative processes is not a need to maintain control but a tendency to achieve consistency between actual and intended courses of personal

development. These results are also in line with this study; the results presented in chapter 9 reflect how coping also is an intended future-oriented act and not just a reaction. The different groups had different goals. The goal of the lab technicians was to focus on the well-being of employees and on things in life other than work. This seemed to structure their cooperative efforts to change the working conditions. The researchers focused more on the interesting character of their work and on competition with colleagues, which shaped their coping efforts.

The accumulated or fluid nature of coping. Even though Lazarus and Folkman (1984) argued that a person alters his or her coping based on his or her environment, researchers do not theorize, conceptualize, or measure coping as a process (Afili et al., 2006). Afili et al. (2006) argued that scholars typically do not capture the ongoing fluctuations and interplay of people's stress and coping as they communicate with each other. Coping in general is often conceptualized and measured as a static state or a one-shot response to various changes in one's social environment. In this study coping is understood as a process of generating meaning between individuals and not a static beginning. The results described in chapter 9 show how different coping strategies continually supplement each other through communication in a group. This result thus also indicates an important point in understanding appraisal and coping: this study is only a momentary picture of the different appraisal and coping strategies.

The flexible organization form. One of the main points of chapter 2 was how the cognitive understanding of stress shared a cultural logic with the flexible organization form; I posed the question of what the consequences are when a stress discourse developed in a military context is transferred into a work environmental context. It was not within the scope of this study to address this point further, but in the aftermath, there are some interesting elements in the results concerning this issue. The researchers' work organization was highly individualized, the responsibility for their projects decentralized and individualized, their working hours flexible, etc. Their main coping practice was focused on the responsibility for self-regulation, and they saw it as their responsibility to cope with working conditions individually. Chapters 8 and 9 pointed to different work environmental elements that, singly or together, created distinct pathways to an individual adjustment-based coping practice, but additionally it can be argued that the specific flexible work organization also made individual self-regulation more accessible. The previously described decentralization of authority, which was transferred to the individual, enhanced the focus on self-regulation. An interesting question is thus whether the norms of busyness and performance function as a new self-regulating imperative in order to help workers regulate themselves.

10.4. WHAT DOES THE STUDY NOT ADDRESS?

10.4.1. THE PERSONAL CULTURE – THE INDIVIDUAL LEVEL OF ANALYSIS

I have chosen cultural psychology (Valsiner, 2007) and distributed cognition (Hutchins, 1995) as my main theoretical perspectives because they provide me the opportunity to assemble the social and cultural processes in stress in a bottom-up rather than a top-down fashion. I wanted to understand the processes, meanings, and experiences in relation to stress when acting within a certain context. The cultural-psychological approach forces a contextualized perspective on perceptions and actions, and the distributed cognitive perspective provides specific concepts that connote the situated and distributed nature of cognition, which then were used to redefine the concepts of appraisal and coping. One of the main points within cultural psychology represented by Valsiner is its attempt to integrate collective and personal culture and thereby accentuate the individual part of culture. Furthermore, this perspective also emphasizes the oppositions and ambiguity in our understandings of the world. In my empirical analyses, I have not focused on these issues to a great extent. I have addressed the opposing processes, but I have to a larger extent focused on the synchronous processes. The same thing is true for addressing personal culture, which in this thesis is limited. The reason for these priorities is the fact that the main aim of my thesis is to focus on shared meaning systems and shared ways of perceiving and acting within the work environment. That does not mean that I disregard the fact that individuals act differently in response to the different suggestions or invitations to appraise and cope from the environment, which also is exemplified in my analyses of the personal material culture in chapter 7.

One of the problems of taking this perspective solely is whether one actually describes a caricature or a culture and the ethical aspect of whether all voices are heard. During the field study, I experienced that employees acted differently within the different cultures and differed from the cultural characteristics I had stressed, but as Hastrup (1989) has argued, “*Cultures are implicitly comparative: A culture can only materialize itself in relation and in contrast to another culture. We see the culture as such in the differences there are between it and other cultures*” (p. 14). So when comparing the different groups, there were polarizations in their cultural practice and differences in many areas.

It would be interesting, though, to conduct further analyses on the relation between personal and collective cultures within a working context as well as to explore what contextual factors enhance individual, social, or artifactual contributions to cognition and, furthermore, to develop the theoretical framework further based on the discussion of when individual cognition ends and distributed cognition begins in the distributed cognitive theoretical perspective.

10.4.2. THE EMOTIONAL LEVEL OF ANALYSIS

In the present project and thesis, I would like to have been able to develop my theoretical framework further with the integration of emotions. Within cultural psychology represented by Valsiner, emotions are a central part of his theory (Valsiner, 2007), and they have begun to be integrated in the theory of distributed cognition with the focus on distributed emotion (Glazer, 2003) or situated perspectives on emotion (Griffiths & Scarantino, 2009). Emotions are a central part of the stress process (Lazarus, 1999), and in order to encompass the complexity of stress, it would have been beneficial for this study to address this issue. I did not, however, develop this perspective further as my empirical project became very time consuming and created some constraints for the possibility of doing theoretical work that encompassed all processes inherent in stress. In the initiating phase of the theoretical developments, I addressed the emotional process of stress and tried to integrate it into my distributed perspective on stress through the work of Griffiths and Scarantino (2009) and the work of Glazer (2003) with the concept of distributed emotion. Through these developments and the theoretical perspective of cultural psychology, I could have included emotions as an additional element in the distributed understanding of appraisal and coping. However, I realized that it was too ambitious, and as a consequence, emotions are not included in the project at present time. I believe, however, that I find an empirical basis for the continuation of my theoretical work including emotions as a part of the distributed understanding of stress.

10.5. METHODOLOGICAL ISSUES

Many methodological discussions concern methods that also could have been relevant to the particular study. I can hardly think of a method that I did not use, so one of the main problems of conducting this study was its time-consuming character as well as the difficulty of integrating all the different kinds of data. Along the way I had to narrow down the ethnographic part of the study to focus primarily on the research unit and, to some degree, one of the groups within the production unit. I also had to narrow down the quantitative part of the study to encompass only the measures of perceived stress and coping. But all these attempts to narrow down the study also gave me a chance to actually explore this phenomenon in depth from a variety of angles. And even though the ethnographic part of the study was narrowed down to primarily encompass the research unit, the fieldwork in the production unit gave me important insight into the distributed nature of stress and contributed to the theoretical development of the physical distribution of appraisal and coping. At the same time, continuing the fieldwork at the production unit gave me a chance to compare not only the actions of the employees and managers of the two departments but also my own actions and reactions within the two departments. For example, my urge to keep my perspective a secret (which I did not do) in the research unit was not an issue in the production unit, which gave me valuable information about the two departments

and about the interaction between me as a researcher and the participants. It led me to understand my behavior and reaction in another way than just from intrinsic explanations or the nature of my study.

In the next section, I address some of the problems inherent in the qualitative and quantitative part of the study.

10.5.1 DID I FIND ONLY MY THEORETICAL PRESUPPOSITIONS?

This project has a great emphasis on social and collective meaning and action. This emphasis is established in the very beginning with a point of departure in the concept of collective appraisal and coping. Additionally, my use of empirical methods with inspirational sources from the grounded theory approach (Glaser & Strauss, 1967; Strauss & Corbin, 1998) drives the emphasis on sociality and materiality during datacollection. Thus, my project is theoretically informed, but my explorative empirical approach made me attentive to data from the field which broadened my theoretical field. My aim was to examine the distributed nature of appraisal and coping, but in the beginning of my fieldwork, it was primarily the social distribution of appraisal and coping I was interested in, because of both the aim of my study and also my inspiration in the concept of collective appraisal and coping. I was not attentive toward the physical surroundings until, after a month within the field, my supervisor suggested I look further into materiality and stress due to my descriptions of my observations.

As the fieldwork progressed, the concept of collective appraisal and coping did not seem adequate to capture the physical and work environmental embeddedness of the stress process. Furthermore, it did not seem to capture the constitutive elements of stress, such as the resources for and barriers to appraisal and coping inherent in the environment that were not attached to a specific stressful situation.

These two factors were derived from the empirical part of the study and not part of my focus at that point. At the end of the fieldwork and in the analysis phase, the specific nature of the working conditions and their invitation to specific ways of coping became apparent and came to play a significant role in my understanding of stress.

From the beginning of my study, the social and cultural processes of stress grew to also encompass the physical and work environmental surroundings; this growth also reflects the parallel integration of cultural psychology in my theoretical framework because the concept of culture implies materiality. My initial methodological reduction to only the social processes and group differences was informed by the qualitative approach and the data, so a cohesive narrative about this phenomenon was reached.

10.5.2. ANALYSIS

In my analysis I applied the grounded theoretical approach in the group interviews, and I did not apply different interaction-oriented analyses such as conversation analysis or membership categorization analysis (Silverman, 1998). The application of such analyses could have provided me with information about the different positions and power relations in the groups and thereby revealed the processes of the social negotiations and the emergence of dominant voices. Unfortunately, I did not have time to conduct interaction-oriented analyses, but through the fieldwork I was able to observe participants' social negotiations and positions in the group.

10.5.3. GENERALIZATION OF THE RESULTS

A common objection toward casestudies with only one or two cases is the lack of generalizability (Kvale & Brinkmann, 2008; Flyvbjerg, 2006). This study can also be criticized by a lack of generalizability due to the limited sample as all respondents were from the same organization and working within the same industry. So the cases represent unique examples of employees in their everyday work practices.

However, an interesting point made by Dreier (2007) is that qualitative research should promote a different conception of generality than the one which dominates psychology. According to Dreier the positivist request for generality reflects an isolated generality which identifies general links and mechanisms and with a point of departure in this understanding of generality, the subject matter of psychology loses much of its grounding in the world.

Dreier (2007) argues that the empirical outcomes from qualitative studies cannot and should not be compared to that of quantitative studies and therefore should not be measured in relation to the positivist conceptualization of generality. It is a different kind of knowledge produced within qualitative research and another conception of generalization which fits the purpose and the kind of research the qualitative researchers undertake. He further states:

“Outcomes of qualitative studies are therefore not fixed and completed results but open-ended phenomena, activities, relations and practices which cannot be given a finite and complete definition”

(p. 3).

Dreier (2007) argues that knowledge within qualitative research is being about how things hang together in social practice and according to Dreier there are not only particulars in concrete situations and practices. Dreier exemplifies this with an example of anxiety and the same example can be made with stress. Stress comprises distinctive general qualities and knowledge of such features can help guide the understanding of

stress in concrete contexts. But concrete stress experiences also comprise particular personal and contextual qualities and significances such as how stress is socially negotiated in social practices. A deeper understanding of these social practices can enrich and broaden the theoretical scope of stress and thereby an analytical and theoretical generalization (Kvale & Brinkmann, 2008) can be made, which is what this study has aimed to do.

10.5.4. THE QUANTITATIVE PART OF THE STUDY

One of the previously describe limitations of the quantitative part of the study is the relatively small sample size which makes it difficult to make statistically conclusive inferences. Furthermore a possible limitation is the 6-month period between our measurements, as this timeframe might be too long to capture the smaller changes in employee perception of their coping mechanisms. As I have been able to do a qualitative study alongside the quantitative measurements, however, this limitation does not detract from the validity of my analysis and conclusion, but should be kept in mind for future research.

10.6. AVENUES FOR THE FUTURE

Through this thesis I have described only a fragment of a distributed, dialogical, and situated perspective on appraisal and coping processes. There remains major theoretical work to shift the traditional focus within stress research. For centuries the epistemology that has guided stress research has concentrated primarily on individual or objective representations and made integration of the two problematic by assuming that either the individual or the objective representation comes first. A distributed perspective on stress suggests that activity and perception are first and foremost embedded in the world, and this perspective can bypass the classical problem of how the individual constitution and the objective world interact. It suggests that much common stress research is the victim of an inadequate epistemology and that a new epistemology might hold the key to an improvement in stress research and a new perspective on how and why stress emerges.

This study is also just a preliminary step toward the exploration of the relationship between the semiotic and material culture within working organizations, and future studies could benefit from studying cases with an archaeological sensibility and understanding of the agency of material culture. Furthermore, they could explore more in depth how different forms of relatedness between discursive and material elements in the environment enter into our interpretations of stress as well as our perceptions of our working conditions and coping practices.

The study has implications for the types of participants that researchers gather. Instead of focusing on the coping efforts of the individual, additional research is necessary that analyzes coping in groups or professional cultures within a specific organizational context. Such a paradigm shift may provide meaningful insight into the embeddedness of appraisal and coping and may better represent the pattern of coping strategies used in organizations.

Furthermore quantitative-oriented researchers could benefit from developing a coping scale more sensitive to a work environmental context instead of using coping measures developed in relation to general life circumstances.

Just as Hutchins (1995) named his book: "*Cognition in the wild*" as a way of emphasizing that we have to study cognition outside the laboratory setting, the study of stress also need to be further addressed through the use of ethnographic methods "*in the wild*" in order to grasp more fully the semiotic and material resources and barriers for coping within the working environment.

REFERENCES

- Afli, T. D., Hutchinson, S., & Krouse, S. (2006). Toward a theoretical model of communal coping in postdivorce families and other naturally occurring groups. *Communication Theory*, 16, 378-409.
- Antonovsky, A. (1979). *Health, stress, and coping*. San Francisco, CA: Jossey-Bass.
- Baarts, C. (2010). Håndværket. Opbygning af viden. Im K. Hastrup (Ed.), *Ind i verden. En grundbog i antropologisk metode* (pp. 35-50). Copenhagen, Denmark: Hans Reitzels Forlag.
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22, 309-328.
- Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2003). The socially induced burnout model. In S. P. Shohov (Ed.), *Advances in psychology research* (Vol. 25) (pp. 13-40). New York, NY: Nova Science.
- Bakker, A. B., LeBlanc, P. M., & Schaufeli, W. B. (2005). Burnout contagion among intensive care nurses: Department of social and organizational psychology. *Journal of Advanced Nursing*, 51(3), 276.
- Bakker A. B., & Schaufeli W. B. (2000). Burnout contagion processes among teachers. *Journal of Applied Social Psychology*, 30, 2289-2308.
- Bakker, A. B., Schaufeli, W. B., Sixma, H. J., & Bosveld, W. (2001). Burnout contagion among general practitioners. *Journal of Social and Clinical Psychology*, 20(1), 82-98.
- Banyard V. L., & Graham-Bermann, S. A. (1993). Can women cope? A gender analysis of theories of coping with stress. *Psychology of Women Quarterly*, 17, 303-318.
- Barsade, S. G. (2002). The ripple effect: Emotional contagion and its influence on group behavior. *Administrative Science Quarterly*, 47(4), 644-675.
- Beehr, T. A., Glaser, K. M., Canali, K. G., & Wallway, D. A. (2001). Back to basics: Re-examination of demand-control theory of occupational stress. *Work & Stress*, 15, 115-130.

Berghuis, J. P., & Stanton, A. L. (2002). Adjustment of a dyadic stressor: A longitudinal study of coping and depressive symptoms in infertile couples over an insemination attempt. *J Consult. Clin. Psychol.*, 70(2), 433-438.

Boolsen, M. W. (2010). Grounded theory. In S. Brinkmann & L. Tanggaard (Eds.), *Kvalitative metoder. En grundbog* (pp. 207-237). Copenhagen, Denmark: Hans Reitzels Forlag.

Bonder, S. (2002). Army operations research: Historical perspectives and lessons learned. *Operations Research*, 50(1), 25-34.

Borgatti, S. P. (2002). *NetDraw: Graph visualization software* [Software]. Harvard: Analytic Technologies.

Borgatti, S. P., Everett, M. G., & Johnson, J. C. (2013). *Analyzing social networks*. Los Angeles, CA: Sage.

Bowling, N. A., Beehr, T. A., & Swader, W. M. 2005. Giving and receiving social support at work: The roles of personality and reciprocity. *Journal of Vocational Behavior*, 67(3), 476-489.

Brandtstädter, J., & Renner, G. (1990). Tenacious goal pursuit and flexible goal adjustment. *Psychology and Aging*, 5(1), 58-67.

Browner, C. H. 1987. Job stress and health: The role of social support at work. *Research in Nursing & Health*, 10(2), 93.

Bryman, A. (2007). Integrating quantitative and qualitative research: How is it done? *Qualitative Research*, 6, 97-113.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267-283.

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief COPE. *International Journal of Behavioral Medicine*, 4(1), 92-100

Clark, A., & Chalmers, D. (1998). The extended mind. *Analysis*, 58(1), 7-19.

Coffey, A. (1999). *The ethnographic self: Fieldwork and the representation of identity*. London, UK: Sage.

Cohen, J. (1969). *Statistical power analysis for the behavioral sciences*. New York, NY: Academic.

- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New York: Lawrence Erlbaum Associates
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385-396.
- Cole, M. (2003). *Kulturpsykologi*. Copenhagen, Denmark: Hans Reitzels Forlag.
- Cooper, C. L., & Dewe, P. (2004). *Stress: A brief history*. Malden, USA: Blackwell Publishing Ltd.
- Constantine, M. G., Alleyne, V. L., Caldwell, L. D., McRae, M. B., & Suzuki, M. B. (2005). Coping responses of Asian, Black, and Latino/Latina New York City residents following the September 11, 2001 terrorist attacks against the United States. *Cultural Diversity & Ethnic Minority*, 11, 293-308.
- De Jonge, J., & Kompier, M. A. J. (1997). A critical examination of the demand-control-support model from a work psychological perspective. *International Journal of Stress Management* 4, 235-258.
- DeLongis, A., & O'Brien, T. (1990). An interpersonal framework for stress and coping: An application to the families of Alzheimer's patients. In M. A. P. Stephens, J. I. T. Crowther, S. E. Hobfoll, & D. L. Tennenbaum (Eds.), *Stress and coping in later-life families* (pp 221-239). Washington, DC: Hemisphere.
- de Mattos, E., & Chaves, A. (2013). Semiotic regulation through inhibitor signs: Creating a cycle of rigid meanings. *Integrative Psychological and Behavioral Science*, 47(1), 95-122.
- Denzin, N. K., & Lincoln, Y. S. (2008). Introduction: The discipline and practice of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The landscape of qualitative research* (3rd ed.) (pp. 1-43). London, UK: Sage.
- Dewe, P., Leiter, M., & Cox, T. (2000). *Coping, health and organizations*. London, UK: Taylor and Francis.
- Dreier, O. (2007). Generality and Particularity of Knowledge. In V. Van Deventer, M. Terre Blanche, E. Fourie, & P. Segalo (Eds.), *Citizen City: Between constructing agent and constructed agency*. (p. 188-196) Concord, Canada: Captus University Publications.
- Dreier, O., Tolman, C., Cherry, F., Lubek, I., & Van Hezewijk, R. (1997). *Subjectivity and the practice of psychotherapy*, (p. 55-61). York, UK: Captus University Publications.

Drew, D., McCallum, B., & Roggenhofer, S. (2004). *Journey to lean. Making operational change stick*. New York, NY: Palgrave Macmillan.

Donnelly, T. T., & Long, B. C. (2003). Stress discourse and western biomedical ideology: Rewriting stress. *Issues in Mental Health Nursing*, 24, 397-408.

Doublet, S. (2000). *The stress myth*. Chesterfield, MO: Science & Humanities.

Eder, M. D. (1916). An address on the psycho-pathology of the war neuroses. *Lancet*, 191, 264-268.

Emerson, R. M. (2004). Working with "key incidents." In C. Seale, G. Gobo, J. F. Gubrium, & D. Silverman (Eds.), *Qualitative research practice* (pp. 427-442). London, UK: Sage.

Etzion, D. 1984. Moderating effect of social support on the stress-burnout relationship. *The Journal of applied psychology*, 69(4), 615-622.

Feiling, A. (1915). A contribution to the study of shell shock. *Lancet*, 189, 63-66.

Fischer, P., Ai, A. L., Aydin, N., Frey, D., & Haslam, S. A. (2010). The relationship between religious identity and preferred coping strategies: An examination of the relative importance of interpersonal and intrapersonal coping in Muslim and Christian faiths. *Review of General Psychology*, 14, 365-381.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12, 219-245.

Folkman, S., & Moskowitz, T. J. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55(1), 745-774.

Forsyth, D. (1915). Functional nerve disease and the shock of battle. A study of the so-called traumatic neuroses arising in connexion of the war. *Lancet*, 189, 1399-1403.

Frydenberg, E. (2014). Coping research: Historical background, links with emotion, and new research directions on adaptation processes. *Australian Journal of Psychology*, 66, 82-92.

Furnham, A. (1997). Lay theories of work stress. *Work & Stress*, 11, 68-78.

Gallagher, S. (2013). The socially extended mind. *Cognitive Systems Research*, 25-26, 4-12.

- Gammeltoft, T. (2010). Intimiteten. Forholdet til den anden. In K. Hastrup (Ed.), *Ind i verden. En grundbog i antropologisk metode* (pp. 273-296). Copenhagen, Denmark: Hans Reitzels Forlag.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago, IL: Aldine.
- Glazer, C. S. (2003). *Looking closely at emotional expression in an online course: A case study of distributed emotion*. (Dissertation). University of Texas, Austin.
- Gibson, J. J. (1986). *The ecological approach to visual perception*. Hillsdale, NJ: Erlbaum.
- Gibbs, G. (2007). *Analyzing qualitative data*. London, UK: Sage.
- Goodwin, C., & Duranti, A. (Eds.). (1992). *Rethinking context: Language as an interactive phenomenon*. Cambridge, UK: Cambridge University.
- González-Ruibal, A. (2013). Archaeology and the Study of Material Culture: Synergies with cultural psychology. In A. Gonzalez-Ruibal (Ed.), *Reclaiming archaeology: Beyond the tropes of modernity*. (p. 1-39) London, UK: Routledge.
- Gosden, C. (2005). What do objects want? *Journal of Archaeological Method and Theory*, 12(3), 193-211.
- Greeno, J. G. (1994). *Gibson's affordances*. *Psychological Review*, 101(2), 336-342.
- Griffiths, P., & Scarantino, A. (2009). Emotions in the wild: The situated perspective on emotion. In P. Robbins & M. Aydede (Eds.), *The Cambridge handbook of situated cognition* (pp. 437-453). New York, NY: Cambridge University.
- Handy, J. (1995). Rethinking stress: Seeing the collective. In T. Newton (Ed.), *Managing stress, emotion and power at work* (pp. 85-96). London, UK: Sage.
- Harkness, A. M. B., Long, B. C., Bermbach, N., Patterson, K., Jordan, S., & Kahn, H. (2005). Talking about work stress: Discourse analysis and implications for stress interventions. *Work & Stress*, 19, 121-136.
- Hastrup, K. (1989). Kultur som analytisk begreb. In K. Hastrup & K. Ramløv (Eds.), *Kulturanalyse. Fortolkningens forløb i antropologien* (pp. 11-21). Copenhagen, Denmark: Akademisk Forlag.

Hastrup, K. (2010). Introduktion: Den antropologiske videnskab. In K. Hastrup (Ed.) *Ind i verden. En grundbog i antropologisk metode*. Copenhagen, Denmark: Hans Reitzels Forlag.

Hasse, C. (2010). Mødet. Den antropologiske læreproces. In K. Hastrup (Ed.), *Ind i verden. En grundbog i antropologisk metode* (pp. 71-92). Copenhagen, Denmark: Hans Reitzels Forlag.

Hatfield, E., Cacioppo, J. L., & Rapson, R. L. (1993). Emotional contagion. *Current Directions in Psychological Science*, 2, 96-99.

Heppner, P. P., Heppner, M. J., Lee, D. G., Wang, Y. W., Park, H. J., & Wang, L. F. (2006). Development and validation of a collectivist coping styles inventory. *Journal of Counseling Psychology*, 35, 107-125.

Hermans, H. J. M. (1995). The limitations of logic in defining the self. *Theory & Psychology*, 5(3), 375-382.

Hermans, H. J. M. (1996). Opposites in a dialogical self: Constructs as characters. *Journal of Constructivist Psychology*, 9, 1-26.

Hermans, H. J. M. (2001). The dialogical self: Toward a theory of personal and cultural positioning. *Culture & Psychology*, 7(3), 243-281.

Hobfoll, S. E. (2001). The influence of culture, community and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology*, 50(3), 337-421.

Hobfoll, S. E., Schröder, K. E. E., Wells, M., & Malek, M. (2002). Communal versus individualistic construction of sense of mastery in facing life challenges. *Journal of Clinical and Social Psychology*, 21, 362-399.

Hodder, I. (1986). *Reading the past: Current approaches to interpretation in archaeology*. Cambridge, UK: Cambridge University.

Holzkamp, K. (1996). Psychology: The social self-understanding of the groundedness of action in everyday life (translated). *Forum Kritische Psychologie*, 36, 7-112.

Holzkamp, K. (1998). Daglig livsførelse som subjektvidenskabeligt grundkoncept. *Nordiske udkast*, 2, 3-31.

Howe, K. R. (1992). Getting over the quantitative-qualitative debate. *American Journal of Education*, 100(2), 236-256.

- Hutchins, E. (1995). *Cognition in the wild*. Cambridge, MA: Bradford.
- Hutchins, E. (2010). Cognitive ecology. *Topics in Cognitive Science*, 2, 705-715.
- IBM. (2012). *IBM SPSS Statistics for Windows* (Version 21) [Software]. Armonk, NY: IBM Corp.
- Jacobsen, B., Tanggaard, L., & Brinkmann, S. (2013). Fænomenologi. In S. Brinkmann & L. Tanggaard (Eds.), *Kvalitative metoder. En grundbog* (pp. 185-205). Copenhagen, Denmark: Hans Reitzels Forlag.
- Kaniasty, K., & Norris, F. H. (1993). A test of the social support deterioration model in the context of natural disasters. *Journal of Personality and Social Psychology*, 64, 395-408.
- Karasek, R. A. (1979). Job demands, job control and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24, 285-308.
- Karasek R. A., & Theorell, T. (1990). *Healthy work: Stress, productivity and the reconstruction of working life*. New York, NY: Basic.
- Karasek, R.A. (2006): The stress-disequilibrium theory: Chronic disease development, low social control, and physiological de-regulation. *La medicina del Lavoro*, 97, 258-271
- Karpatschof, B. (2007). Bringing quality and meaning to quantitative data: Bringing quantitative evidence to qualitative observation. *Nordic Psychology*, 59(3), 191-209.
- Kinman, G., & Jones, F. (2005). Lay representations of workplace stress: What do people really mean when they say they are stressed? *Work & Stress*, 19(2), 101-120.
- Kirsch, D. (1995). The intelligent use of space. *Artificial Intelligence*, 73, 31-68.
- Kristensen, T. S., Hannerz, H., Høgh, A., & Borg, V. (2005). The Copenhagen Psychosocial Questionnaire: A tool for the assessment and improvement of the psychosocial work environment. *Scandinavian Journal of Work, Environment & Health*, 31(6), 438-449.
- Kuo, B. C. H., Roysircar, G., & Newby-Clark, I. R. (2006). Development of the cross-cultural coping scale: Collective, avoidance, and engagement strategies. *Measurement and Evaluation in Counselling and Development*, 39, 161-181.

Kuo, B. C. H. (2013). Collectivism and coping: Current theories, evidence, and measurements of collective coping. *International Journal of Psychology*, 48(3), 374-388

Kvale, S. (1976). The psychology of learning as ideology and technology. *Behaviorism*, 4, 97-116.

Kvale, S. (1977). Dialectics of Remembering. In N. Datan & H.W. Reese (Eds.), *Life-span Developmental Psychology: Dialectical Perspectives on Experimental Research* (p. 165-189). New York: Academic Press.

Kvale, S., & Brinkmann, S. (2008) *InterViews: Learning the craft of qualitative research interviewing* (2nd ed.). London, UK: Sage.

Latour, B. (2000). The Berlin key or how to do words with things. In P. Graves-Brown (Ed.), *Matter, materiality and modern culture* (pp. 10-21). London, UK: Routledge.

Lave, J. (1988). *Cognition in practice: Mind, mathematics and culture in everyday life*. New York: Cambridge University Press.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.

Lazarus, R. S. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Review Psychology*, 44, 1-21.

Lazarus R. S., Deese, J., & Osler, S. F. (1952). The effects of psychological stress upon performance. *Psychological Bulletin*, 49, 293-317.

Lazarus, R. S., & Eriksen, C. W. (1952). Effects of failure stress upon skilled performance. *Journal of Experimental Psychology*, 43, 100-105.

Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York, NY: McGraw-Hill.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York, NY: Springer.

Lazarus, R. S. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Review Psychology*, 44, 1-21.

Lazarus, R. S. (1999). *Stress and emotion: A new synthesis*. London, UK: Springer.

- Lämsäsalmi, H., Peiro, J. M., & Kivimäki, M. (2000). Collective stress and coping in the context of organizational culture. *European Journal of Work and Organizational Psychology*, 9(4), 527-559.
- Lewig, K. A., & Dollard, M. F. (2001). Social construction of work stress: Australian newsprint media portrayal of stress at work, 1997-98. *Work & Stress*, 15, 179-190.
- Linell, P. (2009). *Rethinking language, mind and world dialogically: Interactional and contextual theories of human sense-making*: A volume in cultural psychology: Constructing human development. Charlotte, NC: Information Age.
- Long, B. C., & Cox, R. S. (2000). Women's ways of coping with employment stress: A feminist contextual analysis. In P. Dewe, M. Leiter, & T. Cox (Eds.), *Coping, health and organizations*. T. Cox & A. Griffiths (Series eds) issues in occupational health. London, UK: Taylor & Francis.
- Lumsden, T. (1916). The psychology of malingering and functional neuroses in peace and war. *Lancet*, 191, 860-862.
- Lyons, R. F., Mickelson, K., Sullivan, J. L., & Coyne, J. C. (1998). Coping as a communal process. *Journal of Social and Personal Relationships*, 15, 579-607.
- Marsden, P. V. (1990). Network data and measurement. *Annual Review of Sociology*, 16, 435-463.
- Markova, I. (2006). On 'the inner alter' in dialogue. *International Journal for Dialogical Science*, 1(1), 125-147.
- Mehrabian, A., & Epstein, N. (1972). A measure of emotional empathy. *Journal of Personality*, 40(4), 525.
- Mickelson, K. D., Lyons, R.F., Sullivan, M.J.L., & Coyne, J.C. (2001). "Yours, Mine, Ours: The Relational Context of Communal Coping." In B.R. Sarason & S. Duck (Eds.), *Personal Relationships: Implications for Clinical and Community Psychology*, (pp. 181-200). New York: Wiley.
- Monnier, J., Hobfoll, S. E., Dunahoo, C. L., Hulsizer, M. R., & Johnson, R. (1998). There's more than rugged individualism in coping: Part 2: Construct validity and further model testing. *Anxiety, Stress & Coping*, 11(3), 247-272.
- Muhonen, T., & Torkelson, E. (2008). Collective and individualistic coping with stress at work. *Psychol. Rep.*, 102(2), 450-58.

Newton, T. J. (1989). Occupational stress and coping with stress: A critique. *Human Relations*, 42(5), 441-461.

Newton, T. J., Handy, J., & Fineman, S. (1995). *"Managing" stress: Emotion and power at work*. London, UK: Sage.

Nielsen, K., & Kvale, S. (2003). Vandringer i praktikkens læringslandskab. In K. Nielsen & S. Kvale (Eds.), *Praktikkens Læringslandskab. At lære gennem arbejde* (pp. 16-38). Copenhagen, Denmark: Akademisk Forlag.

Noyes, A. (2004). Learning landscapes. *British Educational Research Journal*, 30(1), 27-41.

Olsen, B. (2006). Archaeology, hermeneutics of suspicion and phenomenological trivialization. *Archaeological Dialogues*, 13(2), 144-150.

Onwuegbuzie, A. J., & Leech, N. L. (2005). On becoming a pragmatic researcher: The importance of combining quantitative and qualitative research methodologies. *International Journal of Social Research Methodology*, 8(5), 375-387.

O'Reilly, K. (2009). *Key concepts in ethnography*. London, UK: Sage.

Paoli, P., & Merllié, D. (2001). *Third European survey on working conditions 2000*. Dublin: European Foundation for the Improvement of Living and Working Conditions.

Pennebaker, J. W., & Harber, K. B. (1993). A social stage model of collective coping: The Loma Prieta earthquake and the Persian Gulf War. *Journal of Social Issues*, 49, 125-145.

Peiró, J. M. (2008). Stress and coping at work: New research trends and their implications for practice. In K. Näswall, J. Hellgren & M. Sverke (Eds.), *The individual in the changing working life*. (p. 284-310) Cambridge, UK: Cambridge University.

Peter, R., & Siegrist, J. (1999). Chronic psychosocial stress at work and cardiovascular disease: The role of effort-reward imbalance. *International Journal of Law and Psychiatry*, 22, 441-449.

Pienaar, J. (2008). Skeleton key or siren song: Is coping the answer to balancing work and well-being? In K. Näswall, J. Hellgren, & M. Sverke (Eds.), *The individual in the changing working life*. (p. 235-256), Cambridge, UK: Cambridge University.

Pollock, K. (1988). On the nature of social stress: Production of a modern mythology. *Social Science and Medicine*, 26, 381-392.

- Rime, B., Paez, D., Basabe, N., & Martinez, F. (2009). Social sharing of emotion, post-traumatic growth, and climate: follow-up of Spanish citizen's response to the collective trauma of March 11th terrorist attacks in Madrid. *European Journal of Social Psychology*, 40(6), 1029.
- Robbins, P., & Aydede, M. (Eds.). (2009). *The Cambridge handbook of situated cognition*. Cambridge, UK: Cambridge University.
- Richter, A. W., West, M. A., & Van Dick, R. (2006). Boundary spanners; Identification, intergroup contact, and effective intergroup relations. *Academy of Management Journal*, 49(6): 1252-1270.
- Rubow, C. (2010). Samtalen. Interviewet som deltagerobservation. In K. Hastrup (Ed.), *Ind i verden. En grundbog i antropologisk metode* (pp. 227-246). Copenhagen, Denmark: Hans Reitzels Forlag.
- Rydstedt, L. W., Devereux, J., & Sverke, M. (2007). Comparing and combining the demand-control-support model and the effort reward imbalance model to predict long-term strain. *European Journal of Work and Organizational Psychology*, 16, 261-278.
- Salamon, G. (1993). Editor's introduction. In G. Salamon (ed.) *Distributed cognitions: Psychological and educational considerations*. (p. xi-xxi) Cambridge, UK: Cambridge University.
- Scribner, S. (1984). Studying working intelligence. In B. Rogoff & J. Lave (Eds.), *Everyday cognition: Its development in social context* (pp. 9-40). Cambridge, MA: Harvard University.
- Shank, G. D. (2006). *Qualitative research: A personal skills approach* (2nd ed.). Upper Saddle River, NJ: Pearson.
- Silverman, D. (1998). *Harvey Sacks: Social Science and Conversation Analysis*. Cambridge UK: Polity Press
- Siegrist, J. (1996). Adverse health effects of high effort/low reward conditions. *Journal of Occupational Psychology*, 1, 27-41.
- Siegrist, J. (2000). Work stress and beyond. *European Journal of Public Health*, 10(3), 223-4.
- Siegrist, J., Starke, D., Chandola, T., Godin, I., Marmot, M., Niedhammer, I., & Peter, R. (2004). The measurement of effort-reward imbalance at work: European comparisons. *Social Science and Medicine*, 58(8), 1463-1473.

Silverman, D. (1993). *Interpreting qualitative data: Methods for analysing talk, text and interaction*. London, UK: Sage.

Sonne-Ragans, V. (2012). *Anvendt videnskabsteori: reflekteret teoribrug i videnskabelige opgaver*. Frederiksberg: Samfundslitteratur

Spradley, J. P. (1979). *The ethnographic interview*. Belmont, CA: Wadsworth.

Strauss, A. L., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Thousand Oaks, CA: Sage.

Tanggaard, L. & Brinkmann, S. (2010). Introduktion til temanummer om materialitet og topografisk vending. *Nordiske udkast*, 1&2, p. 1-4

Theorell T., & Karasek R. A. (1996). Current issues relating to psychological job strain and cardiovascular disease research. *Journal of Occupational Health Psychology*, 1, 9-26.

Tjørnhøj-Thomsen, T. (2010). Samværet: Tilblivelser i tid og rum. I K. Hastrup (Ed.) *Ind i verden: En grundbog i antropologisk metode*. (pp. 93-116). Copenhagen, Denmark: Hans Reitzels Forlag

Van der Doef, M., & Maes, S. (1999). The demand-control (-support) model and psychological well-being: A review of 20 years of empirical research. *Work & Stress*, 13(2), 87-114.

Van Vegchel, N., de Jonge, J., Bosma, H., & Schaufeli, W. (2005). Reviewing the effort-reward imbalance model: Drawing up the balance of 45 empirical studies. *Social Science and Medicine*, 60, 1117-1131.

Valsiner, J. (1998). *The guided mind*. Cambridge, MA: Harvard University.

Valsiner, J., & Van der Veer, R. (2000). *The social mind*. New York, NY: Cambridge University.

Valsiner, J. (2003). Beyond social representations: A theory of enablement. *Papers on Social Representations*, 12, 7.1-7.16.

Valsiner, J. (2005). Scaffolding within the structure of dialogical self: Hierarchical dynamics of semiotic mediation. *New Ideas in Psychology*, 23, 197-206.

Valsiner, J. (2007). *Culture in minds and societies: Foundations of cultural psychology*. Los Angeles, CA: Sage.

- Wertsch, J. V. (1991). *Voices in the mind*. Cambridge, MA: Harvard University.
- Wertsch, J. V. (1997). Narrative tools of history and identity. *Culture & Psychology*, 3(1), 5-20.
- Viner, R. (1999). Putting stress in life: Hans Selye and the making of stress theory. *Social Studies of Science*, 29(3), 391-410.
- Wainwright, D., & Calnan, M. (2002). *Work stress: The making of a modern epidemic*. Buckingham: Open University Press.
- Zittoun, T., Duveen, G., Gillespie, A., Ivinson, G., & Psaltis, C. (2003). The use of symbolic resources in developmental transitions. *Culture & Psychology*, 9(4), 415-448.
- Yin, R. K. (2003). Case study research: Design and methods (3rd ed.). In *Applied Social Research Methods Series*: Vol. 5. Thousand Oaks, CA: Sage Publications.



SUMMARY

In this study I apply a social and cultural approach to work related stress and understand stress as something embedded and distributed across the physical and social environment. I am interested in how the cultural practices and thereby socio-material practices at work are related to stress understandings, to specific appraisals of the work conditions and to specific coping practices.

The project explores the distributed nature of stress in an organizational context using a mixed methods design with a combination of a questionnaire and fieldwork.

The thesis finds that stress is embedded within the material and social environment which is reflected in that a variety of material and social resources and barriers inherent in the work environment invite or limit certain ways of appraising and coping with specific working conditions. Furthermore, the thesis finds that social practices (informal and formal groups) within the working environment have different access to how to appraise the working conditions and how to cope with them and differ in their appraisal and coping practices in the direction of an individualistic adjustment-oriented coping practice vs. a collective alteration-oriented coping practice. Finally the thesis finds that a non-supportive management practice seems to strengthen these social and cultural practices and reinforce a less flexible coping pattern.

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